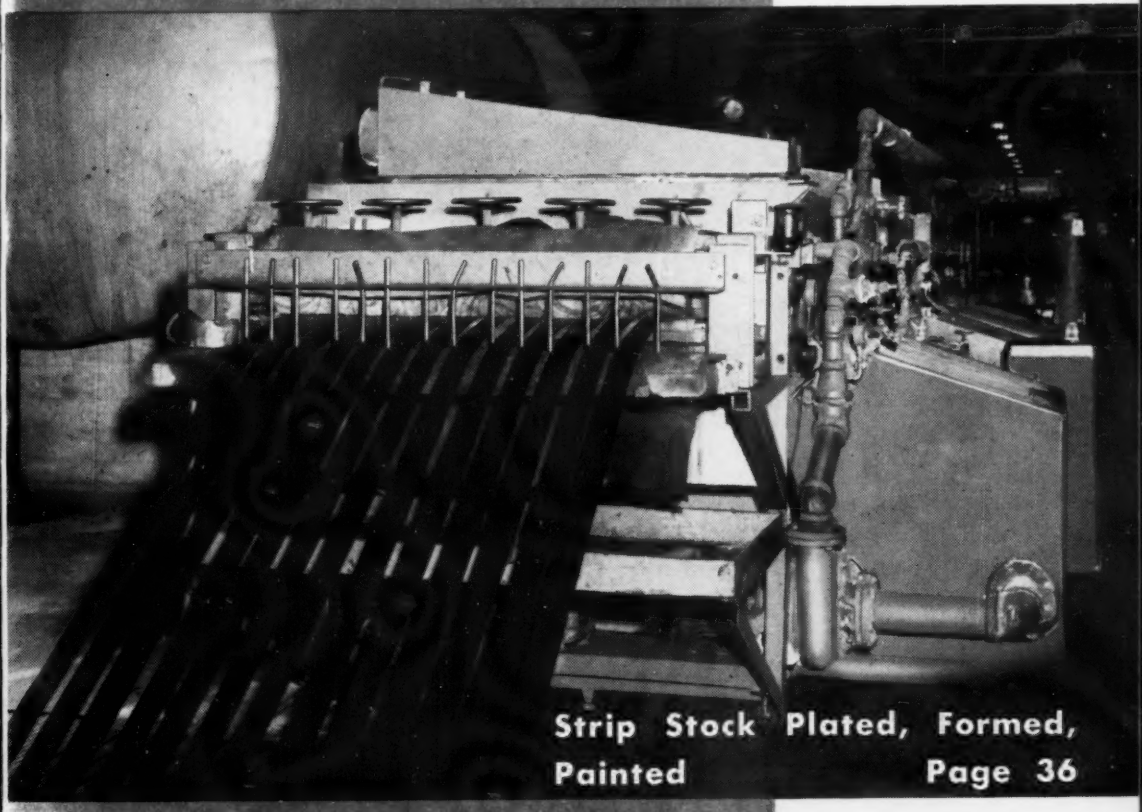
products finishing

NOVEMBER
1958



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finishes on metal products

NEW . . . AND MAKING FRIENDS FAST!

RO-BRIGHT

Full-Bright • High-Speed

CYANIDE COPPER PLATING PROCESS

✓ **BRIGHTNESS . . . Extremely wide and usable production bright plating range through current densities up to 80 amps. per square foot.**

✓ **HIGH SPEED . . . Outstanding uniformity between high and low current density areas. Saves time and metal.**

✓ **FLEXIBILITY . . . May be used with potassium, sodium, or mixed formulation to produce semi-bright or full-bright copper as desired. May be used *with* or *without* Rochelle Salts with equal effectiveness.**

✓ **SERVICE . . . While addition agents are easily controlled by the Hull Cell Test, you may have an occasional question. With ROHCO® and Distributor's Laboratories and Service Representatives, you are assured rapid and reliable service.**

✓ **ECONOMY . . . Surprisingly low conversion costs because RO-BRIGHT Addition Agents are compatable with nearly all other present addition agents. If you are plating bright copper now you'll be pleasantly surprised at the relatively low cost of operating with RO-BRIGHT.**

Ask your ROHCO Representative — or write for details. Send sample of your bath for conversion recommendations!

— — — — — Nationwide Stockpoints — — — — —

R. O. HULL & COMPANY INC.

1304 Parsons Court • Rocky River 16, Ohio

For more data circle 301 on Postpaid Card

Don't throw away those epoxy-coated rejects

Here's a new paint stripper that will save them

Do you scrap perfect metal parts that have been imperfectly coated with epoxies, vinyls, polyesters and other hard-to-strip paints or lacquers?

In the last few months, users of Oakite Stripper S-A have eliminated many such losses. Here's what some of them say about it:

CALIFORNIA: An aircraft manufacturer tested many strippers on an epoxy designed to resist attack by hydraulic fluid. Finally found that Oakite Stripper S-A is "the only one that safely strips this paint from anodized aluminum."

NEW YORK: A camera maker coats flash bulb reflectors with black vinyl paint outside and aluminum paint inside. "Stripper S-A is the fastest ever used on our rejects."

OHIO: A maker of toy pistols had trouble stripping alternate coats of lacquer and metallized aluminum. Now "Stripper S-A does it amazingly fast and remetallizing is completely satisfactory."

CALIFORNIA: A producer of metal furniture uses Stripper S-A to remove clear epoxy from plated parts. Chemist says "This is the best stripper on the market."

ALABAMA: A hardware maker had trouble stripping lacquer from brass door knobs. Oakite Stripper S-A now does the work in "less than 1/3 the time taken by any other stripper."

NEW YORK: A manufacturer of business machines tested several strippers on various finishes on steel and aluminum. Verdict in favor of Stripper S-A was: "It's doing a wonderful job."

FREE Write Oakite Products, Inc., 20 Rector St., New York 6, N. Y., for complete information on Oakite Stripper S-A.

In our 50th year

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS · METHODS · SERVICE
SCIENCE

Technical Service Representatives in Principal Cities of U. S. and Canada

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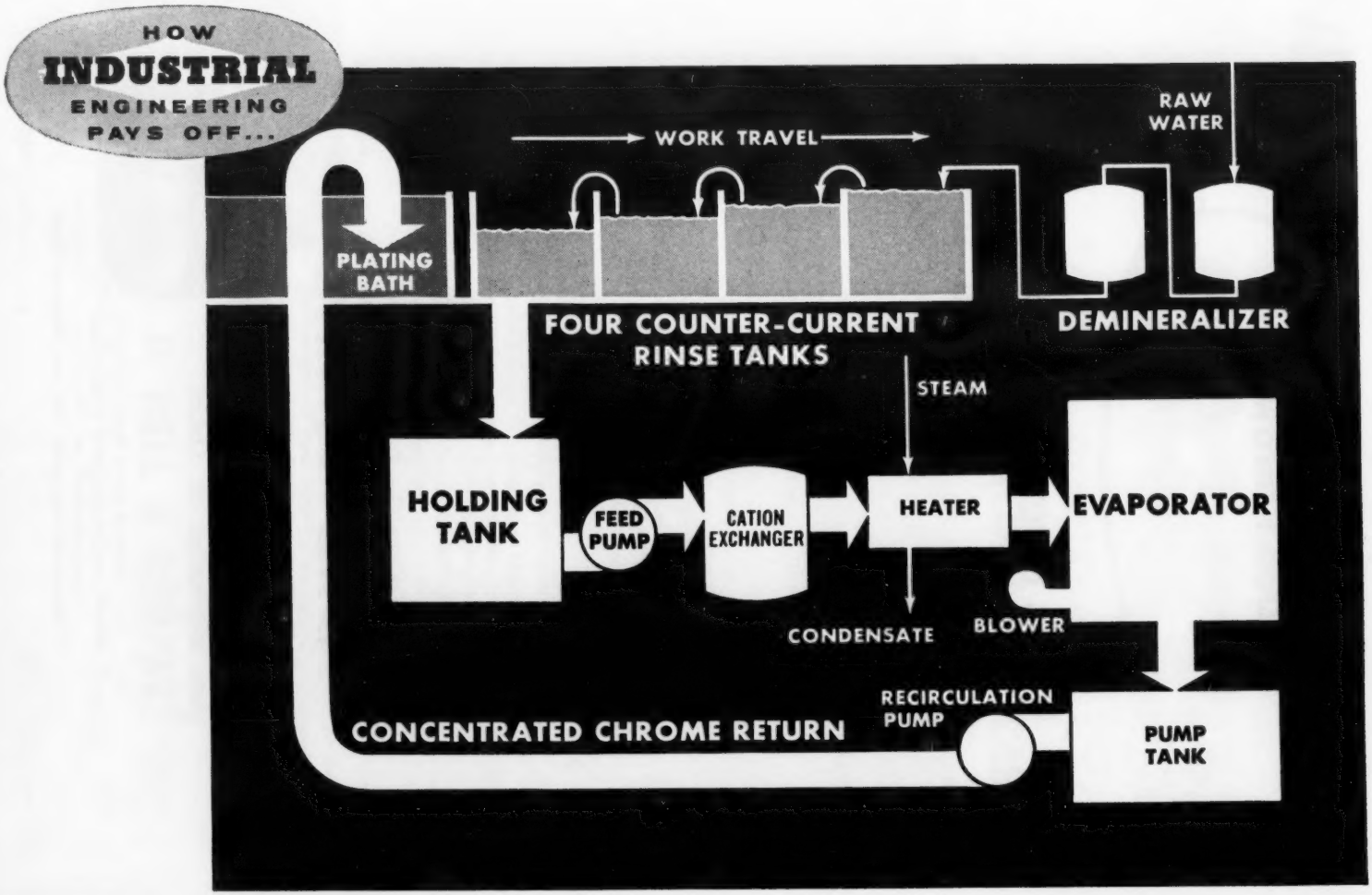

HOW
INDUSTRIAL
ENGINEERING
PAYS OFF...
WORK TRAVEL
RAW
WATER
PLATING
BATH
FOUR COUNTER-CURRENT
RINSE TANKS
DEMINERALIZER
STEAM
HOLDING
TANK
FEED
PUMP
CATION
EXCHANGER
HEATER
EVAPORATOR
CONDENSATE
BLOWER
RECIRCULATION
PUMP
CONCENTRATED CHROME RETURN
PUMP
TANK

EXAMPLE:

EXAMPLE:

Recovering Chromic Acid at Less Cost than Destroying it

The Chromic Acid Recovery System diagrammed above was engineered by INDUSTRIAL for a large automotive plant. It was developed after a *thorough analysis* of the entire plating operation indicated that desired efficiency would be reached by reducing the rinse water flow rate. When this was done, rinsing was still efficient and complete, with less than 4 ppm acid concentration in the final tank . . . but the higher concentration in the first tank made it possible to use a fast, conventional evaporator to recover Chromic Acid. No pre-concentration was necessary (the small cation exchanger only removed metal contaminants).

After making a careful analysis of operating costs, including labor, power and amortization, as compared with a destruction system of equal capacity, The INDUSTRIAL Recovery System showed a net *GAIN* of $26.65 per day, against destruction *COSTS* of $54.06 per day!

Here, then, is another good example of how INDUSTRIAL engineering pays off by increasing plating efficiency and economy.

INDUSTRIAL

INDUSTRIAL FILTER & PUMP MFG. COMPANY
5904 Ogden Avenue, Chicago 50, Illinois

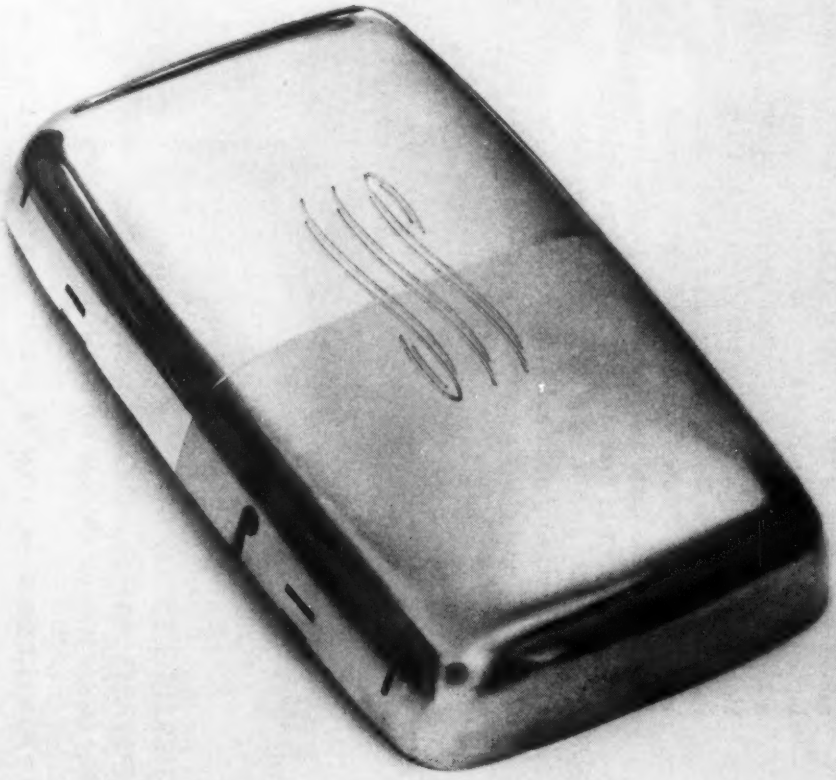
Call or write INDUSTRIAL to find out how an engineered system like this can solve your specific plating waste and recovery problems.

P-258

PRESSURE FILTERS ◆ ION & HEAT EXCHANGERS ◆ WASTE-TREATING EQUIPMENT

For more data circle 305 on Postpaid Card

How to make metal stripping an exact science: What metal do you want to strip? There are eight metal strippers in the Enthone "ENSTRIP" series, which, in most cases, will do the specialized job thoroughly, quickly, economically. If one of these standard strippers won't precisely cover your requirements, there are special Enthone research developments available. Write us about your particular needs or problems. Include a sample of your product if possible. We'll be glad to recommend the best methods to follow. Enthone, Inc., 442 Elm Street, New Haven 11, Conn.



ENTHONE

ENTHONE, INC. IS A SUBSIDIARY OF AMERICAN SMELTING AND REFINING COMPANY

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products finishing

Vol. 23 No. 2 November, 1958

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Member
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Metal Finishing Suppliers Association

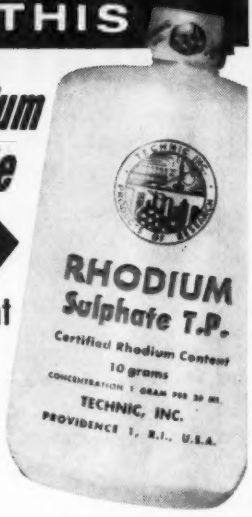
Published monthly with two issues in March and copyrighted (1958) by Gardner Publications, Inc., 431 Main St., Cincinnati, Ohio. Printed in U.S.A. Accepted as controlled circulation publication at Cincinnati, Ohio.

For more data on advertisement on opposite page, ← circle 306 on Postpaid Card

TEST THIS

NEW Rhodium Concentrate

an improvement by TECHNIC



Technic developed this superior Rhodium concentrate to meet today's electroplating specifications with —

- LOWER STRESS
- HIGHER PURITY
- FINER GRAIN

Testing is easy because of high compatibility with existing Rhodium baths. Ask for complete data on characteristics and applications.

When you adopt Technic solutions or methods, our technical staff is yours until optimum performance is assured. Write or phone today.

TECHNIC, INC.

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Chicago Office

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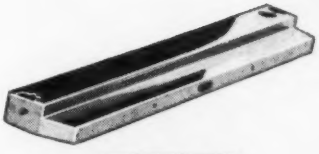
★ ★ ★

Circulation over 21,500— largest in the finishing field

GRIND
POLISH
BUFF
DEBURR

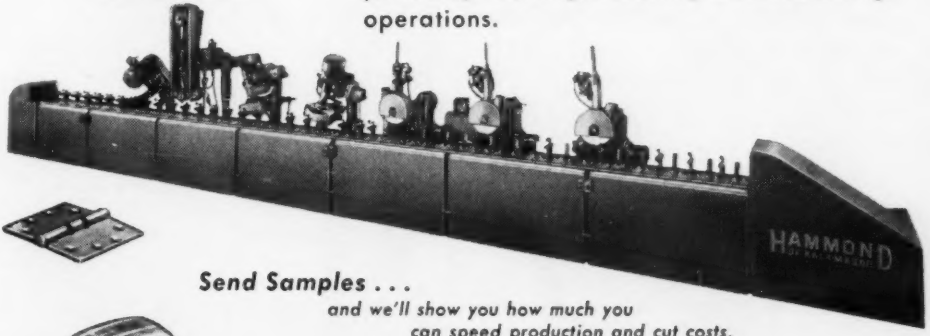
WITH A *Hammond*
STRAIT LINE AUTOMATIC



Over and Under Strait-Line shown. Other Strait-Lines available in Reversing, Horizontal Return and Open Center types.

Head styles include floating, non-floating and oscillating with 1-1/2 to 25 HP range.

Hammond Automatics will speed your grinding, polishing, buffing, brushing and deburring operations.



Send Samples . . .
and we'll show you how much you can speed production and cut costs.

Hammond Machinery Builders INC.

1622 DOUGLAS AVENUE **KALAMAZOO, MICHIGAN**

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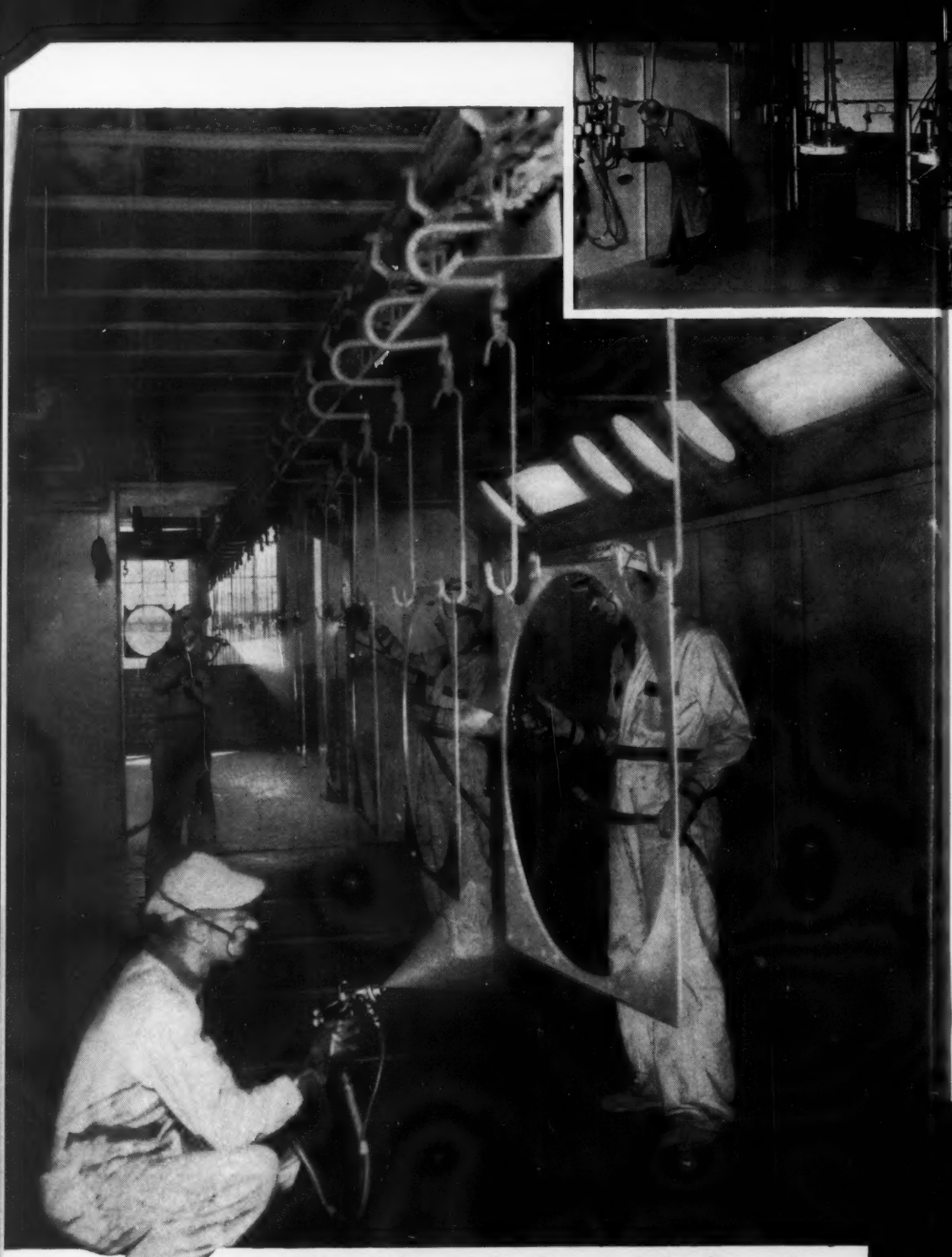


Above: With a steady flow of two enamel colors always available, production has been more than doubled. Down time for color changes and enamel replenishment has been cut 40%.

8098

Far left: Binks air-operated pumps send enamel direct from 55-gallon drums to adjacent spray booth. Binks DUALHEET paint heaters, being inspected, raise enamel to 140° F. This lowers viscosity and reduces need for thinners.

Left: Metal assemblies start 3-stage phosphatizing operation in the Mayville, Wisconsin, plant.

AT MAYSTEEL, BINKS SPRAY UNITS HELP

boost phosphatizing, priming and painting production by 200%

"Maysteel Products, Inc., produces sheet metal parts and finished products on contract. As part of our expansion program we needed a modern finishing system that would produce quality work on tight schedules. To help us solve the problem, we called in Binks," reports Maysteel's president, Mr. C. E. Stryker.

Complete finishing system

METAL PREPARATION: A three-stage conveyorized phosphatizing system was developed employing 384 Binks stainless steel spray nozzles. The nozzles completely bathe the metal parts in chemically treated water, wash water and chromic acid rinses. Materials are reclaimed and recycled.

METAL PRIMING: Continuing on the conveyor, parts pass through a drying oven into a 22′ water wash spray booth. A Binks circulating system supplies primer to two painters using Binks Model 7 spray guns.

ENAMELING: After another oven drying, the parts are ready for a coat of hot spray enamel in a second water wash spray booth. Up to five painters using Binks Model 7 spray guns are supplied by a two-color circulating system. Binks Dualheet paint heaters, located just outside the booth, raise the enamel to 140° F. This eliminates the need for thinners and insures full-coat coverage in a single pass.

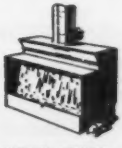
Engineering assistance available

Learn how Binks extensive finishing experience and equipment can be of benefit to you. There is no obligation. Just contact your nearest Binks Branch Office or, if you prefer, write direct to the address below.

Ask about our spray painting school
Open to all... NO TUITION... covers all phases

Binks
EVERYTHING FOR
SPRAY PAINTING

SPRAY GUNS


SPRAY BOOTHS

NATIONWIDE SERVICE

Binks Manufacturing Company
3118-40 Carroll Ave., Chicago 12, Ill.

REPRESENTATIVES IN PRINCIPAL U.S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY
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INVESTIGATE THIS TIME-SAVING

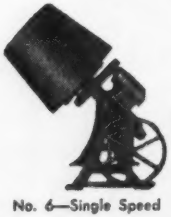
VARIABLE SPEED MODEL

Bench-Type Single Speed

BENCH MODEL
VARIABLE SPEED

No. 5—Single Speed

No. 5A—Single Speed



No. 6—Single Speed

Note Carefully These IMPORTANT POINTS

Barrels can be filled with parts or abrasive—*while running.*

Work can be watched — samples removed for inspection — *while running.*

Angle can be changed for best abrasive or polishing action — *while running.*

Barrels can be emptied by tilting to pouring position — *while running.*

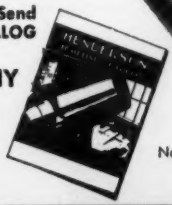
Barrels are made in various sizes, shapes, and materials. They are easily replaced.

No. 5—Variable Speed

No. 5A—Variable Speed

No. 6—Variable Speed

If You're a Tumbler, Send for This NEW CATALOG



THE HENDERSON BROS. COMPANY

"The Tumbling Barrel People"

138 SOUTH LEONARD STREET
WATERBURY, CONNECTICUT

SINCE 1880 DESIGNERS AND BUILDERS OF TUMBLING BARREL EQUIPMENT

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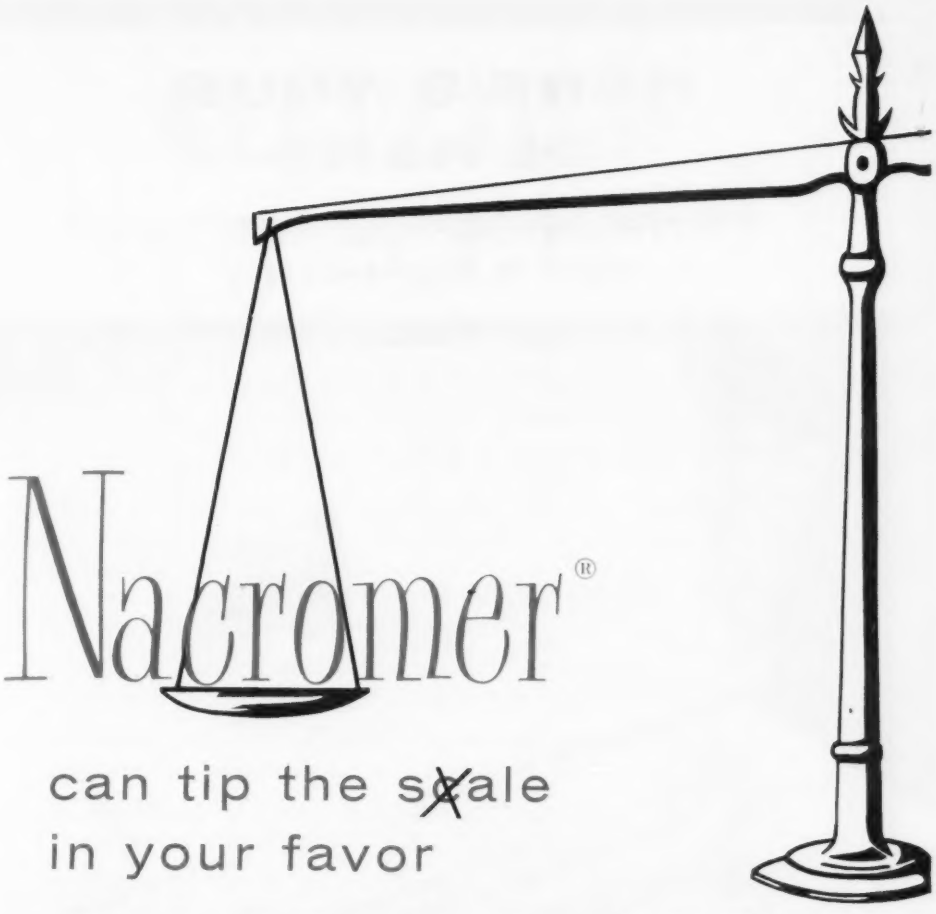

Nacromer®

can tip the scale in your favor

Often, the only difference between competitive products is the visible impression they make on the shopper. In deciding which to buy, the shopper could just as easily flip a coin—and, you'll get your share of the business... you hope!

But, you can do something to tip the scale... and the sale... in your favor. Nacromer synthetic pearl essence makes the difference. It costs little, yet, adds immeasurably to the beauty of your regular coating material. It has been proven, time and again, that Nacromer is a worthwhile investment.

As a profit-minded business man, you'll want to see for yourself. So, why not drop us a note today?

THE **Mearl** CORPORATION

world's leading producers of pearl essence

124 EAST 40th STREET, NEW YORK 16, N. Y.

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HERE'S YOUR REWARD

for telling us what you want in brighteners--

Your Allied Finishing Systems Engineer will be glad to discuss the benefits of ISOBRITE Brighteners in your operations. He's listed in your 'phone book under "Plating Supplies". Or, write for technical data and product list giving details of your operations.

ISOBRITE T.M.

PLATING BRIGHTENERS

Now—28 ISOBRITE BRIGHTENERS
For Zinc, Cadmium, Copper and White Brass
HAVE THE *FOUR* BIG FEATURES YOU ASKED FOR!

When the Allied line of brighteners, now known as ISOBRITE, had the famous ARP trademark on them, we made a survey to find out exactly what *you* wanted most in brighteners. Your answers helped guide our research and development staff in evaluating and consolidating our new line.

Now, here are the results—the industry's most complete line—28 *ISOBRITE Brighteners with these most-wanted features:*

1. LONGER LIFE . . . Your own records will show ISOBRITE Brighteners give longest possible life in rack or barrel plating operations.

2. BRIGHTNESS . . . You'll see for yourself that ISOBRITE Brighteners give a diamond-like sparkle that just can't be matched.

3. THROWING POWER . . . Even if your product has deep recesses, you'll get a uniform, all-over brightness that only ISOBRITE Brighteners can give you.

4. WIDER BRIGHT RANGE . . . ISOBRITE Brighteners operate efficiently over exceptionally wide current density ranges and have greater tolerance for temperature change.

Remember, there's an ISOBRITE Brightener especially designed for your specific operations—whether you're rack or barrel plating zinc, cadmium, copper or white brass . . . an ISOBRITE Brightener that is entirely compatible with most other brighteners. Don't just order brighteners—specify ISOBRITE. There *is* a difference!

Allied Research Products, Inc.

4004-06 E. Monument St., Baltimore 5, Md.
Branch Office: 400 Midland Ave., Detroit 3, Mich.

Chemical and Electrochemical Processes, Anodes, Rectifiers, Equipment and Supplies For Metal Finishing

For more data circle 313 on Postpaid Card

BOOTH-STRIP® *spray booth coating covers completely with one pass of the gun*

Because a single coat of BOOTH-STRIP is all you need, you get about twice the coverage per gallon, and it takes about half as long to apply. *That means lower labor cost, less down time of spray booth.*

- **BOOTH-STRIP sprays on faster than a square foot per second. Covers entire booth in minutes. *Three-mil coat has tensile strength of 3,000 psi.***
- **Comes ready to spray with standard equipment. No mixing or thinning. Equipment cleans with tap water.**
- **Dries opaque white to improve visibility.**
- **Water-based, completely fire-safe and non-toxic.**

STRIPS OFF EASILY WITHOUT TEARING
Large areas of BOOTH-STRIP peel off readily in one piece from even the most irregular surfaces. Leaves spray booth clean as new.

Start saving money on spray booth housekeeping. Order a trial gallon of BOOTH-STRIP today.

SPRAYLAT CORP.
One Park Avenue, New York 16, N. Y.

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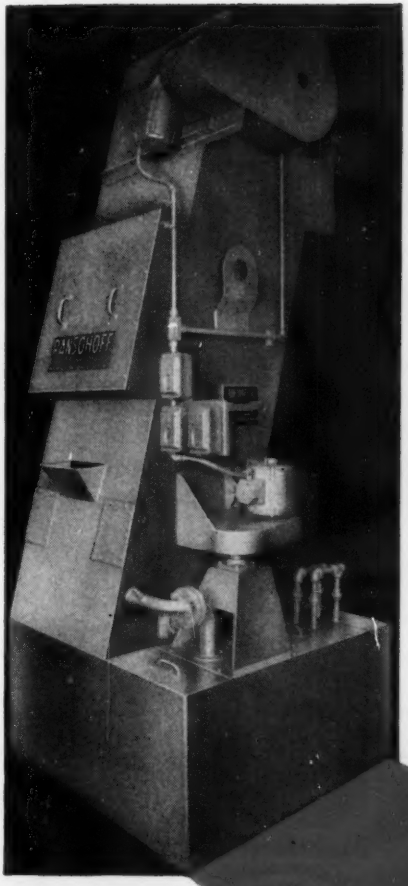

RANSOHOFF VERTICAL WASHER USES 175% LESS FLOOR SPACE

What is 28 sq. ft. worth on your plant floor? It's your initial saving with this Ransohoff Vertical Conveyor Type Washing Machine. The unit shown takes only 4 by 4 feet, yet with its vertical conveyor eleven feet tall, it does the job of a washer normally requiring 44 sq. ft. of floor space. It actually provides continuous operation in less space than required for a batch-type unit.

In approximately this proportion, Ransohoff can design and build to your requirement a washer, or a series of washers, as high as your plant ceiling. Or, they can be designed to discharge on a floor above.

Besides adding this 175% saving in floor space to your assets, a Ransohoff Washer continues to produce important operating economies for years after the unit is paid for. Adaptable to automatic feed and discharge, it's designed for spill-proof handling of small parts. Rugged design features insure years of service-free operation. The husky Ransohoff Packless Pump features variable head and volume by merely a change of sheaves.

VERTICAL DESIGN SAVES THIS MUCH FLOOR SPACE — 28 SQ. FT.

Use your air rights! Make the most of your available floor space with a Ransohoff Vertical Washer.

Write today: Ransohoff, Inc., 610 N. Fifth St., Hamilton, Ohio

Ransohoff *The oldest name... the newest ideas*

Designers and Builders of Equipment for the Surface Treatment of Metals

• Washing • Rinsing • Burnishing • Rustproofing • Sawdust Polishing and Drying • De-Scaling • De-Burring • Drying • Pickling • Complete Finishing Systems • Foundry Wet Cleaning Mills • Ultrasonic Cleaning

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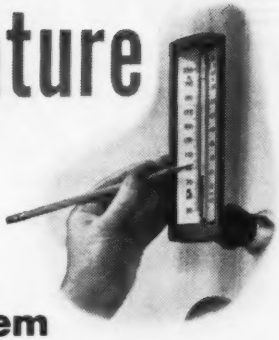
Read the Temperature and SAVE!



New Cold Bonderite System Cuts Heat Costs Up to 70%

The temperature gauges on the input lines of a typical Cold Bonderite System installation tell the story. 40° to 75° cooler in cleaner, rinse and Bonderite than in the conventional hot phosphating installation.

And all that heat saved translates into dollars saved, because chemical costs are comparable, as is the effective protection of the coatings produced.

Salt spray tests show effectiveness of coatings produced by Cold Bonderite System.

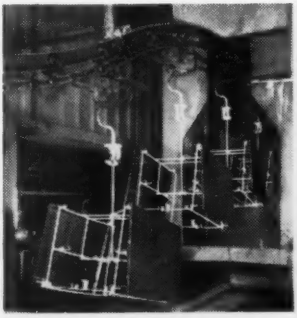
This is a thoroughly tested and proven system. The Cold Bonderite System is in use right now in many plants in many industries. And more are changing to it as they hear about the spectacular savings.

- A large automotive plant reports savings at the rate of 40 carloads of coal per year.
- An appliance manufacturer says the Cold Bonderite System is saving 5¢ per cabinet.
- Another manufacturer shut down one of his boilers because of reduced heat requirements.
- An automotive plant is saving about 12¢ per body.

There are other operational savings besides heat when you use the Cold Bonderite System. You'll use about 25% less water. You'll save electricity because you won't need to run an exhaust fan. You'll save on maintenance. You'll cut down-time, since there's no waiting for cool-off should service be required.

There are so many benefits and advantages to the new Cold Bonderite System that you can't afford not to investigate it for *your* plant.

Call or write today!



Parker quality and Parker dependability mean that your production lines will roll steadily and efficiently.

PARKER RUST PROOF COMPANY
2172 E. Milwaukee, Detroit 11, Michigan
Tel: TRinity 5-3377

BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE	TROPICAL
corrosion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces	heavy duty maintenance paints since 1883

Since 1914—leader in the field

*Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.

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WANTED!

Licensees for New Plating Process

Applications are now being accepted for exclusive territorial licenses for the Cooper plating process, a method of *electroplating* adherent deposits of ZINC-TITANIUM and other metals *directly* on ALUMINUM, MAGNESIUM AND STEEL.

Licenses will be granted in specified areas—a state, combinations of states, foreign countries.

The guaranteed minimum royalty requirement is $25,000.00 per annum plus $7500.00 per annum for each sub-licensee within the territory. Exclusive license carries with it a non-transferable option to manufacture the electrolyte used in the processes.

Applicants must now be engaged in electroplating or an allied industry; must have a full-time chemist in their employ, and a certified public accountant available for audit of sub-licensees.

Licenses will be issued on or about March 15, 1959. Licenses will automatically include the issuance of like privileges on other processes presently under development. These include titanium and zirconium processes.

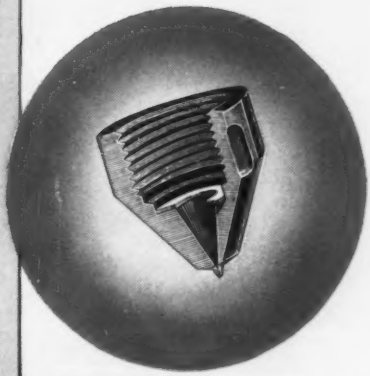
No applications will be acceptable after December 10, 1958. Applications should be addressed to:

THORNTON PRODUCTS COMPANY

P. O Box 254 • Tecumseh, Michigan

Deburring and Cleaning
8 TIMES FASTER — and Better
by Liquid Honing with EXOLON FASTBLAST

Photo courtesy Vapor Blast Mfg. Co., Milwaukee, Wisconsin.



The almost microscopic holes in this Diesel fuel injector cup were deburred and cleaned by Liquid Honing with EXOLON FASTBLAST. And, best of all, it produced a smooth surface that promoted better fuel flow and cut down gum deposits — all at a saving of 87.5% over conventional methods.

If you have a finishing operation, let our technical and research staff estimate your savings by changing to this profit making method! Mail coupon below for fast service!

Liquid Honing is a method using EXOLON FASTBLAST (aluminum oxide) abrasive in particles so small they can be suspended in a slurry and thrown at high speed against the work to be finished. Scales, burrs, carbons, oxides are quickly removed — in fact one man and one machine equalled the former production of eight men using conventional methods in the deburring and cleaning of the Diesel fuel injector cup illustrated.

The rate of finish is controlled by varying the air pressure, abrasive size, type and concentration, blast angle and distance of nozzle from the work. The abrasive mesh sizes are usually 80, 100, 150, 180, 220, 240, 320, 400, and 600.

The EXOLON Company
Tonawanda, N. Y.

We are interested in saving money on our finishing.

- ☐ Have an EXOLON representative call on us.
- ☐ Send us information on EXOLON FASTBLAST.
- ☐ Send us information on "Liquid Honing"

Name_____

Company_____

Address_____

City_____ Zone____ State_____

The EXOLON Company

943 East Niagara Street
Tonawanda, N. Y.

Manufacturers of SILICON CARBIDE *and* ALUMINUM OXIDE ABRASIVES

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DU PONT
REG. U.S. PAT. OFF.

PRODUCT NEWS FO

PLATING SPECIALIST AT NEW LABORATORY (above) studies copper anode corrosion in transparent plating tank. Du Pont specialists are constantly searching for new ways to improve copper-plating techniques. (Left) New $2 million laboratory houses the latest plant-scale equipment to help insure practical solutions to production problems.

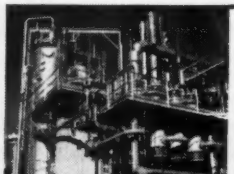
New Du Pont Laboratory helps solve customer problems ...researches new copper-plating processes

Plating problems are a major consideration at Du Pont's new Sales Technical Laboratory. Here, trained specialists use full-scale plating equipment to work out practical answers that can help you improve copper-plating quality, speed production, cut costs.

Research in plating techniques and processes is another important activity at the new lab. This continuing Du Pont research has resulted in a new high-speed cyanide process for bright-copper plating on steel parts and zinc die castings. This new process has been thoroughly field-tested, and is producing high-quality results on such parts as automobile bumpers and grilles, hardware products and wire.

Another Du Pont development now undergoing tests and refinements is a new technique for plating level copper on polished-steel parts. This new process promises to eliminate unracking, buffing and cleaning prior to nickel and chromium plating on many different types of parts. The level-copper process holds considerable promise for the plating of zinc-base die castings for smoother, more uniform deposits with excellent hiding power.

Ask your Du Pont Technical Representative for more details about these new plating developments resulting from Du Pont research, or about any of the products on the opposite page.



MODERN PLANT ASSURES DEPENDABLE SUPPLY OF QUALITY PLATING CHEMICALS

Du Pont plant at Memphis, Tenn., is now producing highest-purity sodium cyanide and potassium cyanide to meet your plating requirements. Example: Du Pont potassium cyanide is 98% minimum pure with .0003% maximum sulfides (as sulfur). You can order mixed shipments . . save time, money, storage space.

FOR BETTER COPPER PLATING

Du Pont research results in Copper-Plating Chemicals that help you speed production, improve quality

Pre-mixed for your convenience —unique Du Pont double salt

This new salt developed by Du Pont combines high-purity Du Pont Cyanobrik® sodium cyanide and copper cyanide into *one* convenient copper-plating chemical for both bath make-up and replenishment. It saves time, cuts down handling of chemicals for greater safety, reduces errors because ingredients are already in the proper proportions required by bath.

SPECIFICATIONS

Copper	28.7% min.
"Free" sodium cyanide	0.4% to 2.0%
Lead	7 ppm. max.
Sulfides as sulfur	10 ppm. max.
Insolubles	0.01% max.

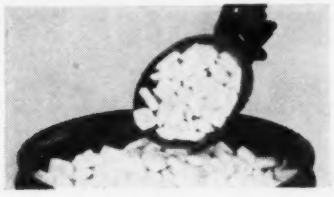
TYPICAL ANALYSIS

Copper	29%
"Free" sodium cyanide	1%
Lead	Less than 1 ppm.
Sulfides as sulfur	Less than 5 ppm.
Insolubles	0.01%

Du Pont Copper Cyanide— regular plating tests insure quality

With Du Pont Copper Cyanide your benefit is in low unit costs that result from savings in time, labor and overhead charges. For example, Du Pont Copper Cyanide readily dissolves in cyanide solutions without introducing inert salts into the plating bath. In addition, you get faster plating with high current density and rapid metal deposition.

Du Pont guarantees a copper content of 70.0% min. and a cyanogen content of 28.5% min. As a further guarantee of the quality of Du Pont Copper Cyanide, regular plating tests are conducted by Du Pont to insure maximum performance.



Du Pont Cyanobrik® now guaranteed 97% min. sodium cyanide

New high-purity "Cyanobrik" sodium cyanide specifications guarantee a higher minimum cyanide content, which can result in a lower net cost for your active cyanide. Automatically, maximum permissible impurities are lowered. This means that you get a full extra pound of active cyanide per 100 lbs. of "Cyanobrik."

You can count on the uniform high quality of "Cyanobrik" for even the most critical plating jobs. The negligible sulfide content makes Du Pont "Cyanobrik" particularly suitable for use in sulfide-sensitive electrolytes, such as proprietary bright-copper baths.

SPECIFICATIONS

Sodium cyanide	97% min.
Sodium chloride	0.2% max.
Sulfides (as sulfur)	0.0005% max.

TYPICAL ANALYSIS

Sodium cyanide	97.5%
Sodium hydroxide	0.4%
Sodium carbonate	1.5%
Sodium formate	0.35%
Sodium chloride	0.1%
Water	0.15%
Sulfides (as sulfur)	0.0004% (4 ppm.)

Drum head comes off quickly with a few turns of a wrench.

Easy-opening, reclosable drums simplify handling of "Cyanobrik" sodium cyanide

Both 100- and 200-lb. net steel drums for "Cyanobrik" sodium cyanide are nonreturnable open-head steel drums. A few turns of a wrench open the drum. It closes just as easily, giving full protection to partially used contents during storage.

FOR MORE INFORMATION about any or all of Du Pont's full line of high-quality products for copper plating, just give your Du Pont distributor a call, or write your nearest Du Pont District Office listed below.

DISTRICT AND SALES OFFICES:

Baltimore 2 . . . . . 321 Fallsway
Boston 10 . . . . . 140 Federal St.
Charlotte 1 . . . . . 427 W. Fourth St.
Chicago 46 . . . 7250 N. Cicero Ave., Lincolnwood
Cincinnati 2 . . . . . 2412 Carew Tower
Cleveland 20 . . . . 11900 Shaker Blvd.
Detroit 35, 13000 W. Seven Mile Rd.
Kansas City 20* Guinotte & Mich. Av.
Los Angeles Box 70, El Monte, Calif.
New York 1 . . . . . 350 Fifth Ave.
Philadelphia . . 308 E. Lancaster Ave., Wynnewood
San Francisco 4 . . . . . 111 Sutter St.

Export Division, Du Pont Building Wilmington 98, Del.

*Barada & Page, Inc.

ELECTROCHEMICALS DEPARTMENT
SODIUM PRODUCTS DIVISION
E. I. DU PONT DE NEMOURS & CO. (INC.)
WILMINGTON 98, DELAWARE

DU PONT

Better Things for Better Living...*through Chemistry*

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ANOTHER NORTHWEST FIRST!

a completely NEW concept in metal cleaning!

- An easy handling liquid.
- Effective on *all* metals.
- Requires NO special tanks or equipment.
- A completely organic product.
- Won't injure rack coatings or work finish.
- Simple positive control.

The name NORTHWEST means first with the best!

Alkalume LC-1 is a specially developed immersion-type cleaner for removal of buffing compounds and soil from all metals, prior to plating or anodizing. • It is non-solvent, non-alkaline and not an emulsion. It has the desirable penetrating properties of both alkali and solvent yet affords complete protection for the surface finish. • Alkalume LC-1 is economical, non-toxic and non-volatile, offering long service life and no disposal problem. • Complete details upon request.

LO HI pH

NORTHWEST CHEMICAL CO.

9310 ROSELAWN DETROIT 4, MICH.

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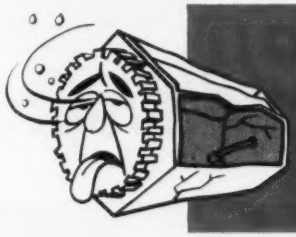


"DON'T GET CAUGHT WITH YOUR **PLANTS** DOWN!"

Have **UDYLITE** *repair, replace plating barrels NOW...at low cost!*

Get ready today for tomorrow's upswing in business! Have your plating facilities geared to peak performance . . . avoid the risk of costly down time during peak periods of production. Take inventory of your equipment needs . . . and the condition of your plating barrel equipment. Then let your Udylite sales engineer give you on-the-job quotations for repairs or replacements. When your equipment is sent to Udylite . . . you are guaranteed a definite return delivery date. A special department handles your order all the way through . . . costly down time is kept to an absolute minimum.

REPAIRS OR REPLACEMENTS BY UDYLITE OFFER THESE ADVANTAGES:

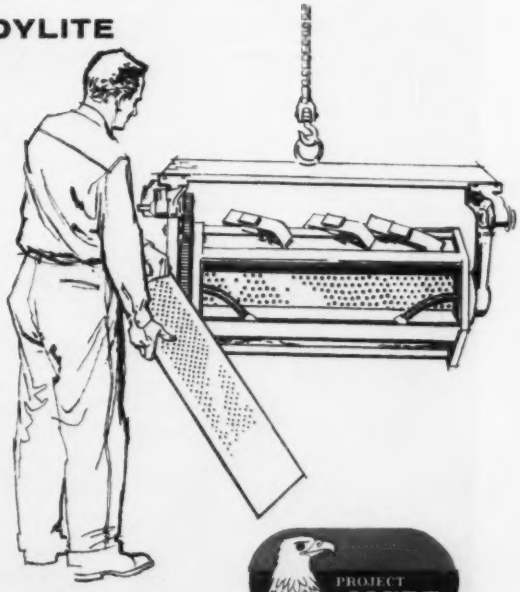
1 IMMEDIATE QUOTATIONS given by Udylite salesman right in your shop!

2 ALL REPAIRS or REPLACEMENTS WITH GENUINE UDYLITE PARTS! You're assured of finest Udylite engineering, highest quality!

3 PARTS FACTORY INSTALLED by trained barrel equipment specialists.

4 FAST, GUARANTEED DELIVERY of equipment sent to Udylite. Special department set up to expedite your order.

Let Udylite help you get your entire plating operation in top working order, ready to go at top capacity. Your Udylite sales engineer will soon be calling on you. But if you need priority service write, phone or wire directly to:



PROJECT ALERT

the udylite corporation

detroit 11, michigan • world's largest plating supplier

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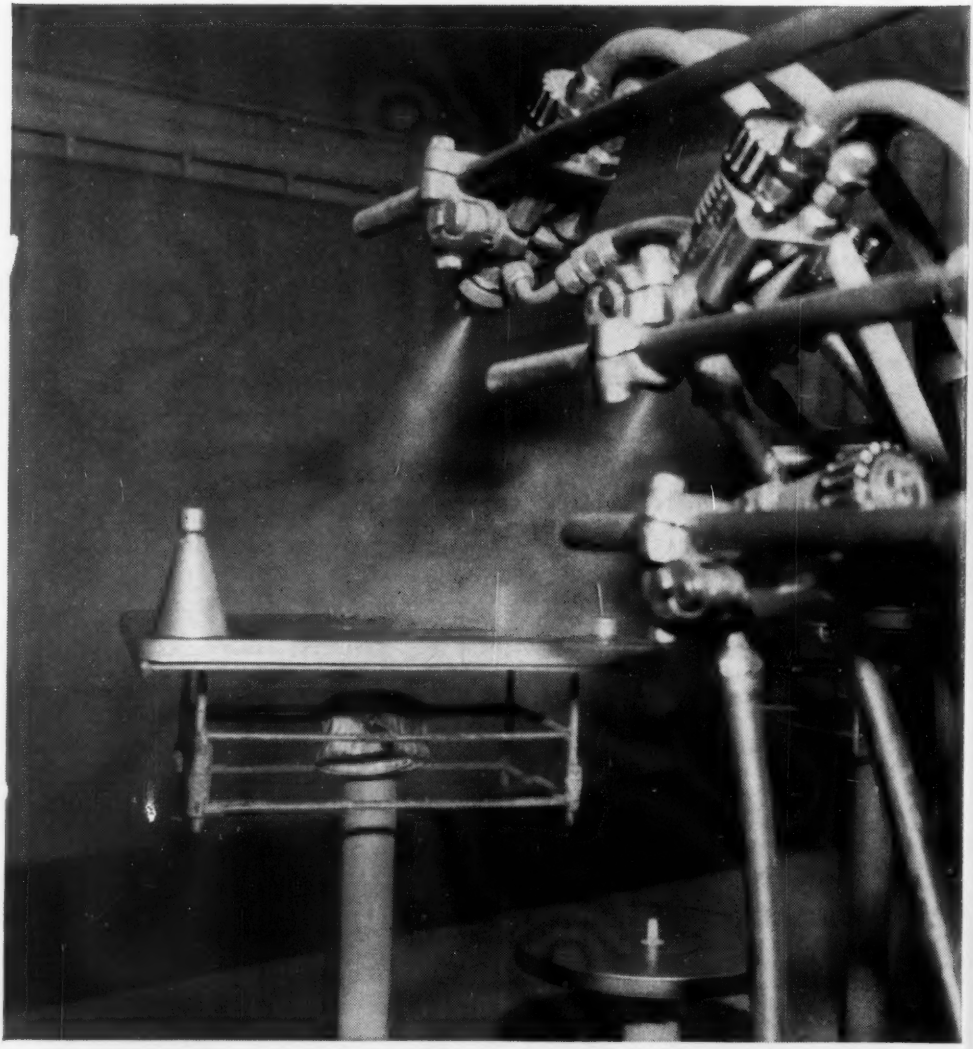
AFTER TRYING VARIOUS FINISHING METHODS . . .

RCA chose "controlled" spray by



DeVilbiss chain-on-edge spray machine automatically coats two parts in the same spray booth at the same time with high-level guns applying a bronze metallic paint to motorboards, while a few inches away, low-level guns coat turntables with antique white enamel.

y by DeVilbiss Automatics

In their search for the best way to apply finishes to "Victrola" components, RCA considered all possibilities.

Their requirements were strict: production rates and quality of finish had to be uniform; material and labor costs lowered; and paint had to be kept off the critical underside area of parts without costly masking or shielding.

The solution: "controlled application" by a DeVilbiss automatic spray system. Now, individual parts move on a DeVilbiss automatic chain-on-edge machine past two spray stations where DeVilbiss automatic spray guns coat them uniformly with controlled paint deposit at speeds up to 600 pieces per hour. Inside the finishing enclosure air is circulated and cleaned by a DeVilbiss air-replacement system to eliminate flaws from air-borne dust and dirt.

Management of RCA's Cambridge, Ohio, Plant has indicated that the new DeVilbiss setup has saved 35% in material, 60% in labor; cut rejects from 20% to less than 1%; given a uniform and quality finish. The equipment is expected to pay for itself in the first 12 months of operation.

Why not call your nearest DeVilbiss branch office today and see how "controlled application" can solve finishing problems not possible by other methods.

THE DEVILBISS COMPANY
Toledo 1, Ohio
Barrie, Ontario • London, England
Branch Offices in Principal Cities

FOR BETTER SERVICE, BUY
DEVILBISS

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Don't be CLOBBERED

with

High Equipment Investment or Labor Costs for CLEANING and PHOSPHATING PROCESSES

Use **"Phosteem"**

Low Equipment Cost!
No Sacrifice in Quality!

And if you want:

● Top Corrosion Resistance, Excellent Paint Durability, Low Operating Costs, Low Labor Costs (under practical production methods too) with a very low equipment investment, PHOSTEEM is the *answer* . . . used on Cabinets, Trucks, Trailers, Busses, Air Conditioners, Farm Implements, Caskets and Large Bulky Equipment . . . Adaptable for any kind of metal: Steel, Aluminum, Galvanized, etc.

Ask for Phosteem Bulletin 55-137

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products for
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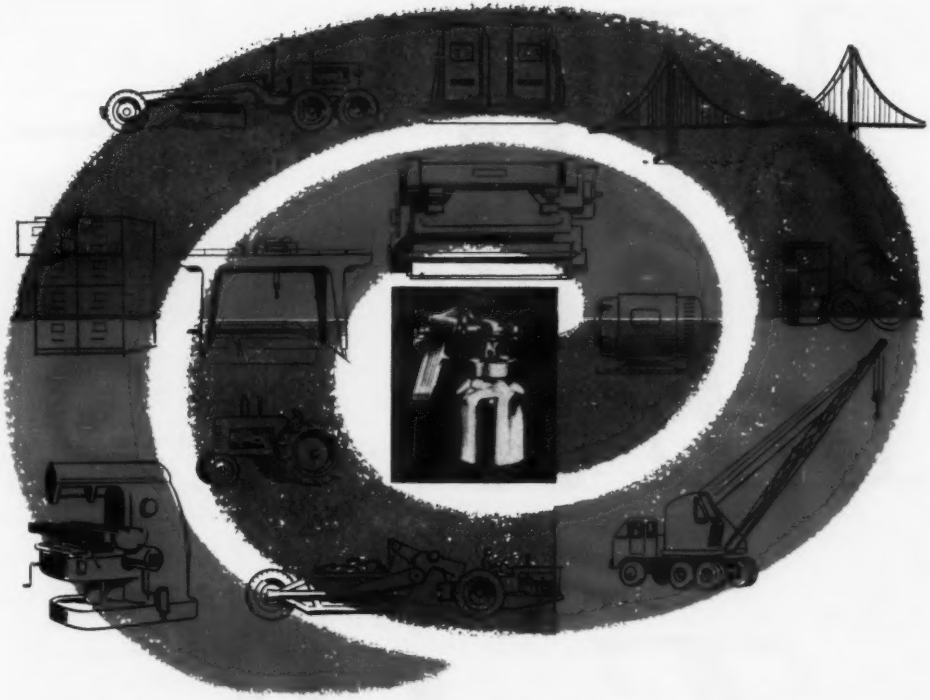

Great advance in "air-dry" paint quality at no cost premium

with new Isophthalic based resins

With Oronite's superior new raw material, Isophthalic, years of extra service can be added to your metal surface coatings. Stronger film to metal bonding, outstanding film flexibility and better gloss retention of Isophthalic based coatings means improved paint performance. The tougher Isophthalic based films also have greater abrasion resistance, hold up far better under severe weather exposure, are more resistant to chemical and industrial fumes.

DEMONSTRATION—FORMULATIONS—PROOF. Let Oronite or your resins supplier show you how Isophthalic based resins can benefit the coatings you use. Oronite field representatives can demonstrate to you the superior properties of Isophthalic resin coatings—whatever your product requirements. Just contact the Oronite office nearest you.

ORONITE CHEMICAL COMPANY
A CALIFORNIA CHEMICAL COMPANY SUBSIDIARY
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4894 *Foreign Affiliate:* California Chemical International, Inc., San Francisco, Geneva, Panama
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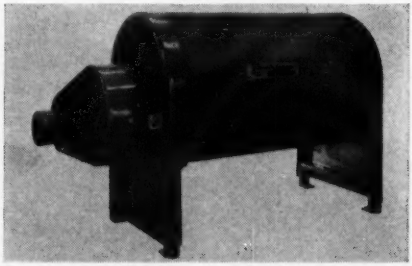
NEW

NEW TECHLINE DIVISION IS FIRS



TECHLINE BARREL FINISHING EQUIPMENT includes a complete line of single and multiple-compartment machines. Because of their exclusive "modular" design, they are unusually economical, and available in almost endless combinations of size and capacity to meet all production requirements.

from WHEELABRATOR®

Techline*

*TRADE MARK

PRECISION FINISHING EQUIPMENT

for <u>both</u> Barrel Finishing and Wet Blasting Processes

WHEELABRATOR CORPORATION

world leader in airless blast cleaning

proudly introduces

Techline*

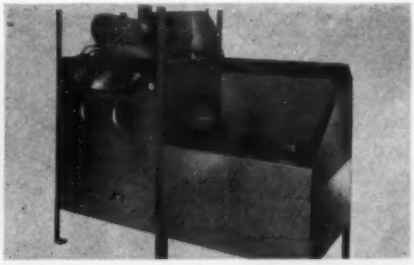
its new precision finishing division, specializing in equipment and supplies for both the barrel and wet blast processes.

FIRST TO OFFER COMPLETE PRECISION FINISHING SERVICE

Roy T. Romine, Chief Engineer

George H. Lieser, Field Sales Manager

Lee D. Stevens, Director of Process Engineering and contract finishing services.



TECHLINE WET BLASTING MACHINES add the new "modular" concept of design to the famous Wheelabrator Liquamatte features, achieving new standards of economy and performance for wet blast precision cleaning and finishing. Standard units are available in a wide range of sizes and capacities.

Now, users of precision finishing equipment, for the first time, have a selection of equipment for *both* important processes of close-tolerance mechanical finishing, the barrel and wet blast methods, from one dependable source.

Through its new Techline Division, Wheelabrator Corporation offers a wide line of barrel finishing equipment, media and compounds, as well as the long-established Wheelabrator Liquamatte line of wet blast equipment and Liquabrasives.

Because Techline equipment and services are not limited to just one process, its application engineers can be purely objective in recommending the one best combination of process and equipment for your precision finishing needs.

Techline design engineers are specialists in precision finishing, with long experience in designing equipment and planning efficient processing operations. Their designs include many exclusive features that are far ahead of any similar machines now available. And Techline offers a complete range of media, compounds and abrasives, all carefully selected and accurately formulated to consistently produce the finish you specify.

Techline's modern research and testing facilities are at your service. Their application engineers will analyze your finishing problem and process samples of your work, to determine the most effective and economical combination of process, equipment and abrasive for you to use.

This service is available to you without charge or obligation. Write for full information on Techline application engineering services.

Techline® TRADE MARK

division of **WHEELABRATOR** CORPORATION

Where precision finishing is a science

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Service

Technical service with a capital S

. . . yours when you specify and use Diamond Chromic Acid

You get the latest facts on all phases of chromic acid application, research and testing. Facts that can help you lick a production problem, quality problem, or research problem.

One such fact—DIAMOND CPA 1800 is *the additive* for chrome plating which increases plating speed, expands tank capacity, improves throwing power and the metallurgical character of chromium plate.

For top-quality plating get DIAMOND CHROMIC ACID and DIAMOND CPA 1800 *plus* all the facts from your Diamond Representative or your nearby Diamond Distributor. They can supply DIAMOND CHROMIC ACID where and when you need it. Diamond Alkali Company, 300 Union Commerce Building, Cleveland 14, Ohio.

Diamond Chemicals

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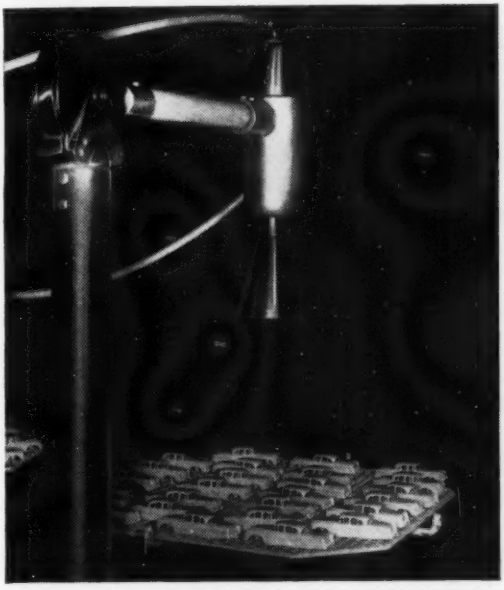
tootsietoys

are painted by the millions with

RANSBURG NO. 2 PROCESS



Miniature automobile bodies of the tootsietoy line are efficiently and uniformly painted as trays of cars pass below one of the four Ransburg No. 2 Process atomizing bells.

QUALITY OF THE FINISH IS IMPROVED AND PAINT COSTS ARE CUT 65% WITH *Electrostatic Spray Painting*

Dowst Manufacturing Co., Chicago, are sticklers for quality in the production of tootsietoys which are turned out at the rate of 25 million a year. That's one reason they changed from hand spray to Ransburg Electrostatic Spray Painting.

RESULTS? Rejects are cut from as much as 5% to about 1%, for they're getting a more uniform, higher quality coating on all parts. Colors are changed easily, and paint mileage is stepped up substantially. For instance, on one toy item, a gallon of paint coated only 1800 units by hand spray. Now, with Ransburg No. 2 Process, they paint 5500 pieces per gallon. That's because of the unmatched efficiency of Ransburg No. 2 Process.

NO REASON WHY YOU CAN'T DO IT TOO!

Whatever your product—whether it's large or small—we'd like to show you what RANSBURG ELECTROSTATIC PROCESSES can do for you in YOUR finishing department. Write for our No. 2 Process brochure which shows numerous production line examples of electrostatic spray painting on a wide variety of products.

Call or write | **RANSBURG Electro-Coating Corp.**

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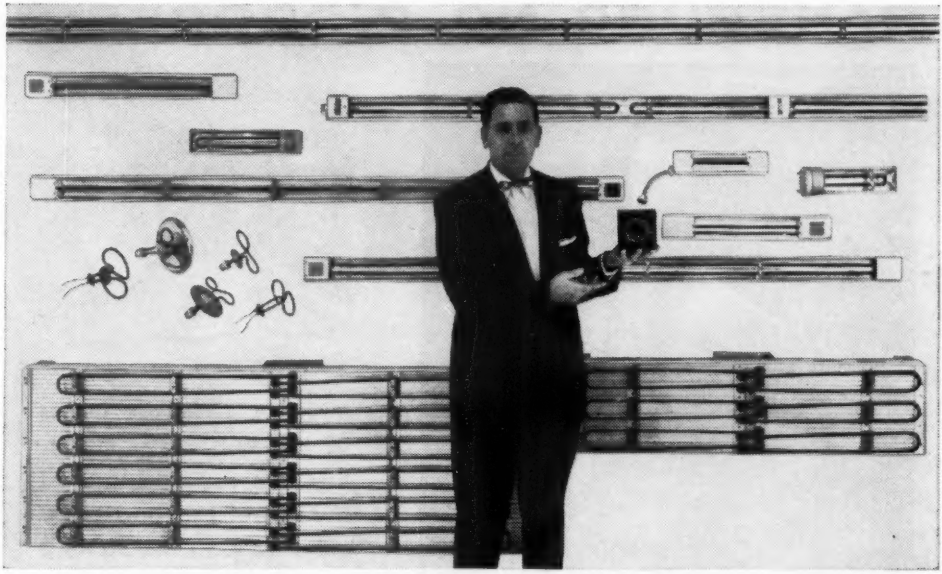
New Heating problem? Old production headache?

℞ Time-saving Far-Infrared heat



Call your Chromalox Man for the Answers

Your Chromalox Representative has the answer to production delays, irregular product quality and other problems caused by outmoded heat sources. Chromalox Electric Far-Infrared radiation can be simply and precisely controlled over largest work areas, and is absorbed uniformly by practically all colors—even optically transparent materials.

With this fast, uniformly distributed heat, generated right at the job site, there is no need for stand-by heat or leaking lines. No smoke, fumes or flames. No glare. It's cooler and cleaner, too. Elements are self-cleaning. Maintenance costs are minimum, as the all-metal heaters are practically indestructible—have no moving parts.

Standard heaters, to fit most jobs, are ready for immediate shipment from the world's largest stock. In addition, Chromalox offers you factory design-engineering service for special applications. 4988

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INDUSTRIAL • COMMERCIAL • RESIDENTIAL
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FREE BULLETIN—Find out more about Chromalox Electric Far-Infrared heat. Ask your Chromalox Representative or write today for your copy of Bulletin CS-607.

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Phosphating processes now available...to fit any production or cost requirement!

New Turcoat concept puts better paint adhesion within the reach of everyone!

In the past, phosphating processes—due to their high initial costs—have principally been utilized only by the larger plants. Realizing the need for better paint adhesion and corrosion resistance among many plants who have not previously utilized phosphating, Turco has broadened its Turcoat line and now offers—for the first time—phosphating processes that can be tailored to fit your individual *production* and *cost* requirements. Turcoat processes currently in use range from small, inexpensive 3-tank set-ups all the way to elaborate 11-stage spray washing systems. With Turcoat, paint is anchored uniformly... permanently. Should accidental gouging occur, there is no corrosion "creep-back" under the paint. Turcoat systems quickly pay for themselves by slashing number of rejects and other problems involved in improper preparation, by minimizing packing and crating costs, by establishing and assuring customer preference.

TURCO

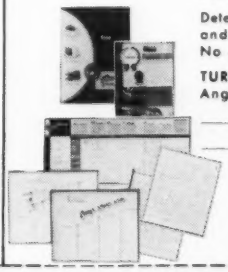
TURCO PRODUCTS, INC.

Chemical Processing Compounds

6135 So. Central Ave., Los Angeles 1, Calif.

Offices in all Principal Cities

Mfg. in Canada by B. W. Deane & Co., Montreal



FREE PHOSPHATING ANALYSIS KIT!

Determine how your products are adaptable to phosphating and to the many paint adhesion advantages it offers. No obligation.

TURCO PRODUCTS, INC., 6135 So. Central Ave., Los Angeles 1, Calif.

_____ Please send free Phosphating Analysis Kit

_____ Please send field engineer for on-the-job survey

Name _____ Title _____

Firm _____

Address _____ PF

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The "Touch of Gold" is going into this barrel

. . . because the operator is adding Norton TUMBLEX abrasive, widely recognized as an unequalled contribution to better, lower cost finishing. For example, after shifting from hand finishing to barrel finishing with ALUNDUM TUMBLEX "T" abrasive, a leading aircraft parts manufacturer reports yearly savings of over $90,000. Norton brings this value-adding, profit-increasing "Touch of Gold" to industry in the widest range of grinding, cutting, polishing and tumbling operations . . . by the most complete line of abrasives . . . backed by world-wide resources and services.

NORTON COMPANY, General Offices, Worcester 6, Massachusetts.

NORTON
ABRASIVES

Making better products...to make your products better

"JOB SHOP" finishing with KIRK & BLUM oven

A job shop never knows what product it may process tomorrow. Yet, designing an oven for that type operation was no mystery for KIRK & BLUM'S experienced engineers.

The resultant "A" type oven shown below accommodates the wide variety of products finished. To allow space for storage and packing below, the oven is mounted above the floor on structural steel supports.

Consult KIRK & BLUM for your oven needs. There's no obligation. Write for "Ovens for Industry" catalog, just released.

The Kirk & Blum Manufacturing Co.
3116 Forrer Street, Cincinnati 9, Ohio

Gas-fired, re-circulating automatically controlled, fully protected 3 pass oven.

For more data circle 331 on Postpaid Card

Completely automatic unattended unloading end of the Stevens Automatic Barrel showing control panel and rectifier site located above machine.

Unistrut says— "COSTS 50% LOWER— FINISH BETTER with . . . STEVENS AUTOMATIC BARREL MACHINE"

Every day in the Unistrut Corporation plant, Wayne, Michigan, thousands of small parts are zinc plated and shipped to Unistrut warehouses throughout the United States. All of these parts are zinc plated automatically by a Stevens Automatic Barrel Machine.

Unistrut high standards require a uniformity of plate on the parts used in their metal framing systems. But since installing the Stevens Automatic Barrel they have reported other advantages as well — "less handling, smaller inventories and quicker shipments." When you consider the 50% cost savings of actual plated parts too, it all adds up to a terrifically profitable investment.

Why don't you tell us your metal finishing problems and let us make recommendations. There's no obligation.

Write today for your copy of the 1958 bulletin, "The Modern Concept . . . Stevens Automatic Barrel Processing and Plating Machine." Write to Frederic B. Stevens, Inc., 1800—18th Street, Detroit 16, Michigan.

STEVENS 75 YEARS OF SERVICE

FREDERIC B. STEVENS INCORPORATED
YOUR METAL FINISHING SUPERMARKET
DETROIT 16, MICHIGAN

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PROCESSING ALUMINUM?

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editorial

Revolution in the Making?

The paint-application industry may be on the verge of its greatest change since lacquer became big business in the twenties. The obstacles standing in the way of industrial use of water-thinned paints are being battered down, one by one, in the research laboratories of paint suppliers.

Paint-industry spokesmen at the 36th Annual Meeeting of the Federation of Paint and Varnish Production Clubs evinced optimism for the industrial future of water-thinned coatings, seemed to think that industrial use is "just around the corner." For a report on several developments discussed at the Federation Meeting, see "Editor's Report on 1958 Paint Convention," beginning on page 58 of this issue.

Water-thinned paints have one edge on solvent-thinned coatings: non-flammability. This fact alone gains them a hearing with most safety-conscious and insurance-rate-burdened paint users. Paint engineers estimate that savings in solvent cost will be appreciable—thus making water paints doubly attractive.

Paint makers and users alike are working to bring closer the day when primers and finish coats of water-thinned paint will be in general use. Automotive frames are now being coated with water-thinned primer in more than one plant. It is rumored that several cars completely finished—primer and top coat—are now being service tested.

Finishing-equipment suppliers also have some development work to do before water-thinned paint can be adopted for industrial use. Certain elements of dip, spray, and flow coat systems must be redesigned; ovens must be redesigned to cure paint containing water rather than solvents; conveyor systems must be lengthened to provide more air set-up time; facilities for demineralizing water must be installed. Spray booth compounds must be reformulated; phosphate coatings must be made as inert as possible.

The solution of these problems, and the increased industrial use of water-thinned paint will create a demand for finishing equipment—perhaps the most active demand since the last cycle of major plant expansion in 1954 and '55.

The promise shown by water-thinned paints does not mean that solvent-thinned coatings will become a thing of the past. Like any other chemical formulation, water-thinned paints will have characteristic properties that will make them satisfactory for some applications, but unable to match the standards set by existing coatings in other applications. Thus water-thinned paints may take their place with the enamels and lacquers, giving the finisher another material to consider when he is drawing up specifications for a product.

To be able to take full advantage of these new coatings, finishing engineers should determine *now* how the adoption of water-thinned paints would affect their plant operations.

Ezra A. Blount

—EDITOR

Drapery Hardware Finished by Plating and Painting

High-quality drapery hardware is produced by zinc plating steel strip stock, phosphatizing, then forming and paint finishing. Kirsch Company, world's largest drapery hardware manufacturer, operates a plating plant in White Pigeon, Michigan, and main finishing and assembly plants in Sturgis, Michigan.

By EZRA A. BLOUNT, Editor

Even though drapery hardware does not have to withstand outdoor exposure, the Kirsch Company has specified a finish of zinc plate over steel, followed by baked enamel in white, bronze or brass. This finish combination ensures that the finish on Kirsch drapery hardware will retain its attractive appearance for long periods of service.

Slitting

Since drapery hardware consists primarily of long relatively narrow shapes, it is most efficient from a manufacturing standpoint to purchase the steel stock from which it is formed in coils or as coil stock. Then since there are many sizes and models of drapery hardware, the Kirsch Company has its own slitting equipment. This makes it possible for the company to purchase coil stock 26½ to 30 inches wide and produce for its own use, or to customers' specifications, strip stock of any width desired.

Since equipment for handling and plating coil and strip stock is somewhat specialized, Kirsch set up the complete operation in a separate plant in White Pigeon, Michigan. Here steel is received in coils; slit to the desired widths; zinc plated and phosphatized; and finally recoiled and shipped to the main Kirsch plant in Sturgis, Michigan for final processing into drapery hardware.

The one-story, 540-foot-long plant at White Pigeon contains slitting, recoiling and handling equipment and a plating machine 325 feet long.

Steel stock is cold rolled, hard to dead soft depending on the job, and varying in thickness from 0.008 to 0.065 inch. It can be slit into strips as thin as ¼ inch wide, but is usually cut to widths of 2 to 3 inches. The stock is slit, deburred mechani-

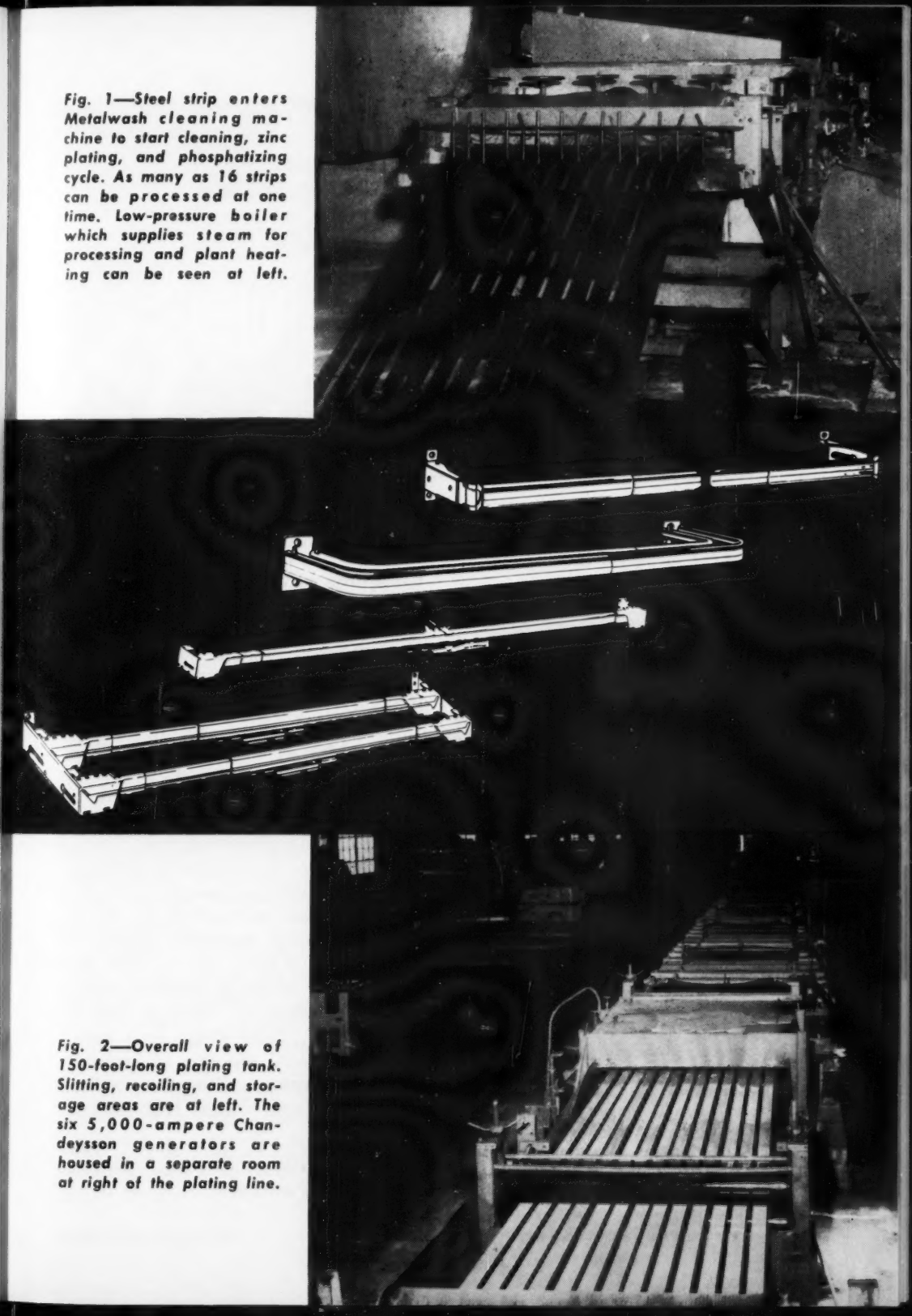


Fig. 1—Steel strip enters Metalwash cleaning machine to start cleaning, zinc plating, and phosphatizing cycle. As many as 16 strips can be processed at one time. Low-pressure boiler which supplies steam for processing and plant heating can be seen at left.

Fig. 2—Overall view of 150-foot-long plating tank. Slitting, recoiling, and storage areas are at left. The six 5,000-ampere Chandeysson generators are housed in a separate room at right of the plating line.

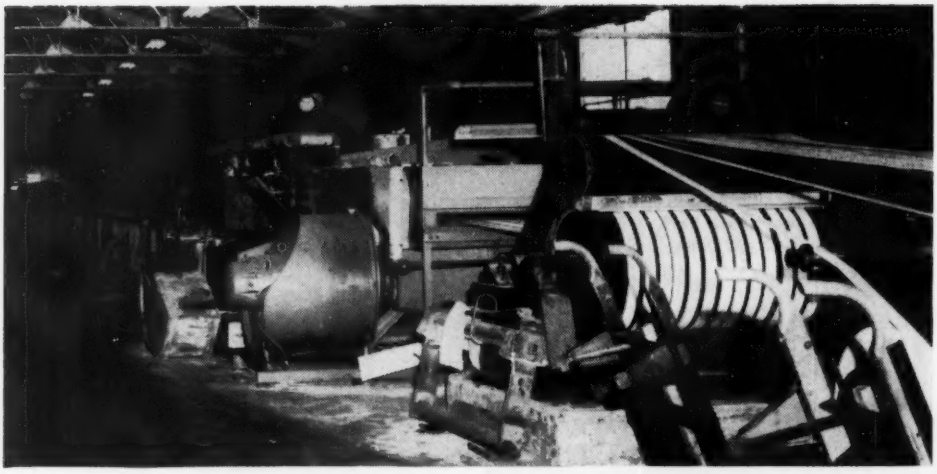


Fig. 3—Metalwash phosphatizing and drying unit (center) and drive rolls (right). Rolls as well as power brushes used at several stages of the process are driven hydraulically.

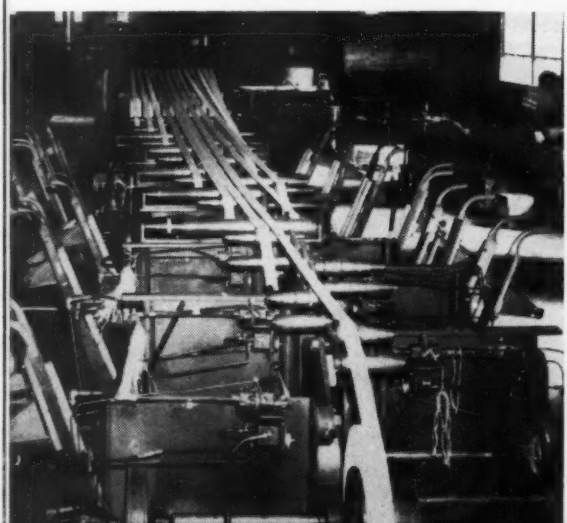


Fig. 4—Recoiling area where zinc plated stock is coiled for shipment. Maximum plant capacity, operating 16 hours per day and handling 16 strips at a rate of 60 feet per minute, is 57,600 feet per hour of zinc plated and phosphatized strip stock.

cally to put a semi-round edge on each side of the cut strip, and is then recoiled.

Cleaning and Phosphatizing

Coils are transported on lift trucks to the loading reels of the cleaning and plating line. This machine has loading positions for 16 coils. As can be noted in Fig. 1, 13 coils are being plated at one time. The strips of steel move through the machine at 25 to 40 feet per minute. The speed can be increased to 60 feet per minute under certain circumstances.

First stage in the metal preparation and plating sequence is a cleaning operation performed in the 4-stage washing machine shown in Figure 1. First the strips are sprayed for 10 to 20 seconds with a cleaning solution* held at 160 to 180 deg. F. Next stage is a spray rinse for 10-20 seconds in circulating warm water, followed by a final rinsing in fresh water. Rubber cov-

*Composition: Pennsalt 30 or Cowles Dryorth (1 oz./gal.) plus sodium tripolyphosphate (2 oz./gal.)

About Kirsch . . .

The Kirsch Company, which last year celebrated its 50th anniversary, is the world's largest manufacturer of drapery hardware (traverse rods, curtain rods and accessory items) and is also a major producer of Venetian and vertical blind components and heat transfer surfaces.

The company's production facilities and general offices are in Sturgis, Michigan, in two modern plants which have a total floor space of 750,000 square feet.

A special metal coating plant with a floor space of 32,500 square feet is in White Pigeon, Michigan. The company also maintains a distribution system of branch offices and warehouses in 22 major cities throughout the United States.

ered rolls, serving as wringers, are placed at the end of each wet process to prevent loss of solution and contamination of the next solution.

Pickling

The strips are next immersed for 5 to 10 seconds in a 3 to 5 per cent solution of sulfuric and hydrochloric acids. A thorough rinse with fresh water follows, and at the same time, wide rotating Fuller brushes brush both top and bottom surfaces of all the strips. The acid dipping and rinsing is carried out in a rubber-lined steel tank fitted with rubber-covered rolls which guide the strips and serve as wringers.

Zinc Plating

Cleaned and pickled steel strip stock now enters the zinc plating tank over a rubber-covered roll. The plating tank is 150 feet long, 4 feet wide, and 30 inches deep. It contains 13,000 gallons of acid zinc solution composed of sulfuric acid and 32-45 oz./gal. zinc sulfate. Zinc anodes (14 sets) are located horizontally in tank top and bottom so as to be parallel with the surfaces of the strips which are being plated. 65,000 pounds of zinc are required to charge the tank.

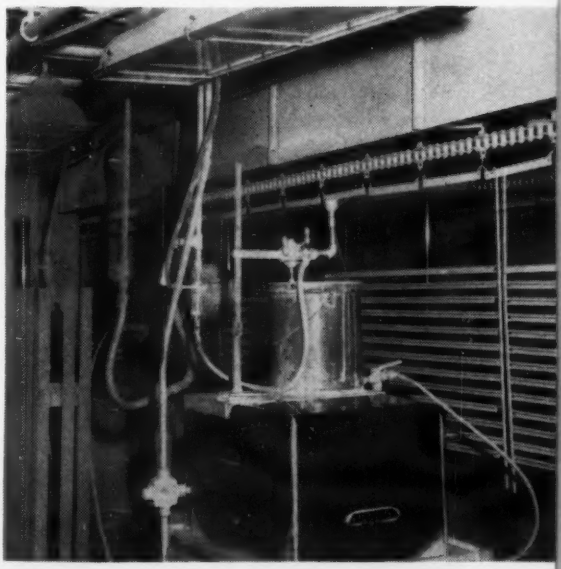


Fig. 5—Formed drapery rods are painted electrostatically by two Ransburg No. 2, three-bell units. Alkyd baking enamel, which is supplied by Interchemical Corp., Bradley-Vrooman, and Niles Chemical Company, is used to finish all Kirsch drapery hardware.

"If the zinc is permitted to build up too thick, grooves form and the rolls are no longer even."

Copper contact rolls are spaced at 10-foot intervals in the tank. These rolls (15 in all) are connected with the power supply, which consists of six 5,000-ampere, 9-volt Chandeysson motor generators located in a separate room of the plant. The copper contact rolls become coated with zinc, and have to be removed from the tank and pickled to remove the zinc periodically, especially when strips of a different width are to be plated. If the zinc is permitted to build up too thick, grooves form and the rolls are no longer even; the strips will not run straight through the tank when this occurs.

A circulating pump moves the acid zinc solution from the front of the large plating tank to the rear at a rate of 200 gallons per minute, thus maintaining continuous circulation of the 13,000-gallon solution. This keeps the solution composition and temperature uniform. A mixing tank is also connected to the circulating pump. Acid and zinc salts can be mixed in the mixing tank and added to the entire solution slowly and uniformly by the circulating pump. The circulating pump thus serves as a proportioning pump.

A zinc plate of desired thickness is applied in the plating tank. Thickness is controlled by regulating the speed of the strips and adjusting the power supplied by the generators. Samples of stock are checked regularly and the coating thickness is measured by the weight-loss method.

Rinsing

Leaving the long plating tank, plated strip is spray rinsed in the unit shown in Fig. 2. A rubber roll removes excess water from the strip.

Water for the entire operation is obtained from the company's own wells. Water used for phosphatizing tanks and for the zinc plating solution is softened prior to use.

Phosphatizing

Strips are now phosphatized with a spray of Bonderite 33 A at 144-155 deg. F., accompanied by simultaneous top-and-bottom power brushing with Fuller brushes. This is followed by a second Bonderite spray. Time required for the cycle is 10 seconds. This step is followed by a fresh-water spray rinse, and a Parcolene chromic rinse. A 5-second interval in a cold-and-hot-air circulating dryer completes the cycle. The phosphatizing and drying machine, and the hydraulically driven roll which pulls the hundreds of pounds of steel strip through the process are shown in Fig. 3.

Drying

The drying unit in the washing machine is steam heated. Strip goes through a cold air blow-off first, then the hot-air section, to eliminate staining. Most of the rinse water is removed by a rubber-covered squeegee or wringer roll located ahead of the drying section.

If specifications do not call for a phosphate coating on the zinc plate, the phosphatizing step can be bypassed, and a slightly acid phosphoric acid final rinse used instead.

Strip stock is dried in the same way as described above. Stock is then recoiled as shown in Fig. 4, and is ready for shipment to the Sturgis plants for final processing, or for shipment to other customers.

Fabrication and Paint Finishing

Coiled zinc plated steel strips which are to be made into Kirsch drapery hardware are shipped from the plating plant at White Pigeon, Michigan, to the company's main plants in Sturgis, Michigan. Here the coils are unrolled and fed through various automatic shearing, cutting, punching and finally roll forming operations. The completely formed parts of drapery hardware are now ready for paint finishing.

Degreasing

The drapery hardware parts thus produced are straight pieces with formed edges and open ends. They can be degreased most efficiently by being stacked on end in huge baskets that are lowered into a degreaser containing Du Pont Triclene D solvent. A solvent spray used to wash the steel parts adds to the cleaning effectiveness of the vapor in the degreaser. A power hoist on a track enables the operator to handle large baskets easily.

Painting

Degreased curtain rods and other parts are transported to the loading area of an electrostatic painting setup, tack wiped, and hung on the spray finishing conveyor. Rods are hung horizontally on racks (Fig. 5) and suspended from conveyor hooks or hangers. The conveyor carries the parts through a paint spray booth equipped with two Ransburg No. 2 electrostatic spray units. These units, each of which have three electrostatic bell-type sprayers, coat surface areas completely

Fig. 6—Brackets and other small parts are barrel plated with bright zinc, in Udylite barrels at left. Operator is checking unloading of plated parts from Ransohoff rotary dryer.

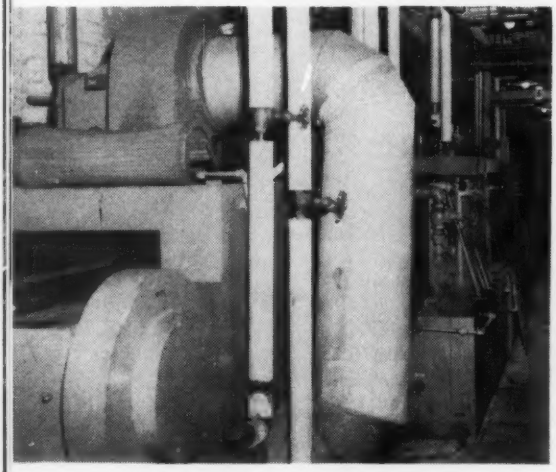
with an alkyd baking enamel as they pass through the booth between the spray units (Fig. 5).

Baking

Painted parts travel through a Jensen Calrod infrared baking oven where the paint is baked for 3½ minutes at temperatures which gradually increase to a maximum of 400 deg. F. Painted and baked parts return on the conveyor to the loading-unloading area, where they are unloaded onto dollies for transporting to the assembly, packing and shipping areas.

For some drapery hardware assemblies, brass rods are specified. These are buffed automatically in centerless-type automatic buffing machines, then degreased, tack wiped, sprayed with a coat of clear baking enamel, and baked.

Fig. 7—This Ransohoff 5-stage, chain-mesh-belt spray washer, phosphatizer, and dryer processes both the plated and unplated parts.



Plating and Phosphatizing Brackets

Small brackets, drapery hangers, and other small parts used in drapery hardware assemblies are fabricated from sheet steel by blanking, punching, forming, and spot welding. These parts are zinc plated after forming. The plating installation (Fig. 6) consists of four Udylite double-barrel bright zinc plating units and the necessary cleaning, pickling, rinsing, and other processing tanks (and auxiliary equipment). Parts are run through a vapor degreaser first, then loaded into the plating barrels for cleaning and bright zinc plating. The standard Du Pont cyanide plating solution is used with the specified amount of Promat zinc brightener. After plating and rinsing, parts are unloaded into wire mesh baskets and processed through a Promat chromate bright dip.

The small parts are then loaded into a gas-fired rotary dryer which unloads the dried products into baskets automatically (Fig. 6).

The dried parts are next processed through a washer and 5-stage phosphatizing cycle to form a surface film suitable for paint application and paint adherence. For this cycle a chain-mesh conveyor belt machine (Fig. 7) is used.

Parts are spread on the chain, spray cleaned**, rinsed, then continue through the phosphatizing cycle*** and final rinses. A steam-

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**Either Wyandotte 38 or Northwest SC-9 used.

***Either Wyandotte Pre-Fos or Northwest Interlox used.

heated hot-air dryer completes the process.

Parts which are too complicated in shape (or too light) to be handled in the chain-belt washer-phosphatizer are processed through a rotary-spray-phosphatizing machine (Figure 8). This unit is made up of a series of rotating drums, the last one of which is a dryer which unloads the parts onto a conveyor belt. This belt returns parts to the

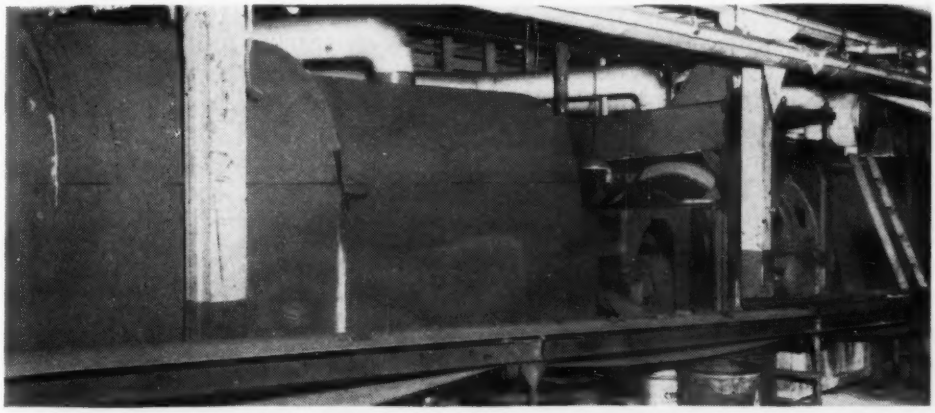
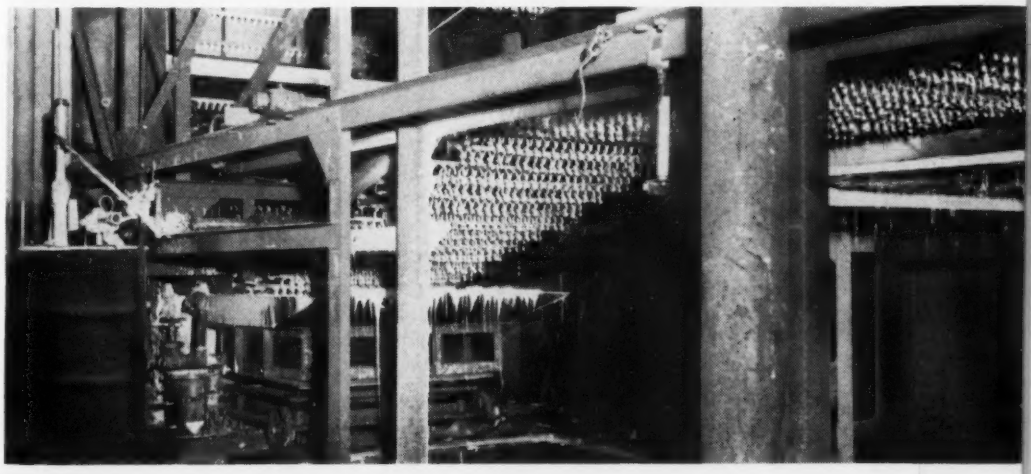


Fig. 8—Ransohoff 5-stage rotary washer, phosphatizer, and dryer can process large quantities of small, light parts. Return belt conveyor (foreground) makes it possible for same operator to handle both the loading and unloading operations for this machine.

Fig. 9—Small brackets are hung on hooks mounted on cross-rods of conveyors by operators standing behind (and obscured by) shallow paint dip tank (left foreground). Excess paint drains from brackets as conveyor moves slowly toward and through Ransburg electrostatic detearing unit (extreme right) where drops of paint are pulled off by 100,000-volt electrostatic charge before they can set to form undesirable beads or heavy spots.



starting point for unloading. Parts are dumped into large drums automatically.

Painting Brackets, Small Parts

The small parts are transported from the plating and phosphatizing area to another painting area. They are then hung on a continuous paint dipping and baking conveyor (Fig. 9). It carries the parts from the paint dip tank on one floor to an oven on the floor above, and back to the starting point. Painted and baked parts are unloaded on the upper floor directly onto conveyor belts.

Racked parts travel through a shallow tank of baking enamel and then through a Ransburg electrostatic de-tearing unit (Fig. 9). The electrostatic charge pulls off droplets of paint and aids in producing a uniform paint film over the irregular surfaces of the drapery hardware parts. By the time the parts leave the electrostatic detearing unit the enamel has set so that no further runs or beads occur.

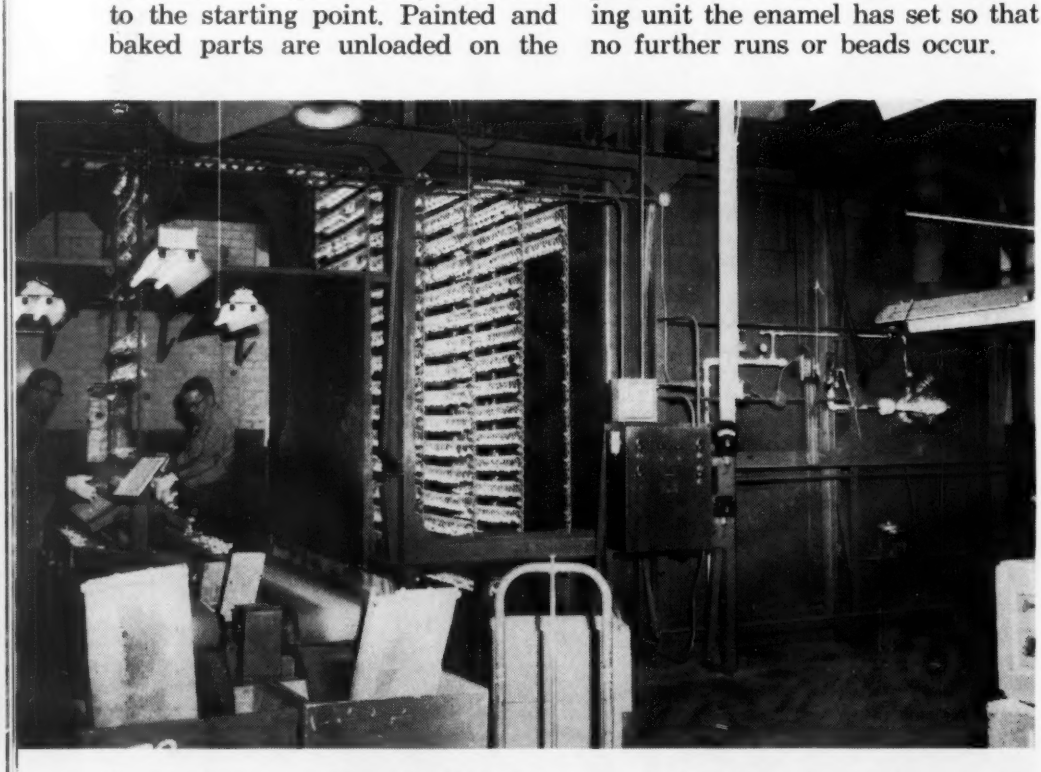


Fig. 10—Parts proceed from the electrostatic detearing unit directly to the floor above and enter the bottom of the Michigan Oven gas-fired oven at the extreme right. Parts make several vertical passes through the oven during the 6½-minute baking cycle. Partlow controls (right foreground) keep oven temperature at 300 deg. F. Baked parts cool in open air (at left of oven) before passing the two unloaders (left). Unloaded parts are then carried away on belt conveyors. (Photographs by PRODUCTS FINISHING.)

The conveyor then carries the parts up into the Michigan Oven gas-fired convection circulating air oven (Fig. 10) on the floor above the painting unit. The baking cycle is 6½ minutes at 300 deg. F. The conveyor makes several vertical passes in the oven to secure the proper baking time with a maximum conveyor speed and a minimum oven size. Parts leave the oven, cool and pass an unloading station where they are transferred to an assembly and packing conveyor belt. The plated, painted and baked parts have a hard enamel finish so that they will withstand rough usage without damage.

Rigid quality control is employed to maintain high process and material standards. All operating solutions are checked regularly. Samples of each production batch of paint are checked in the control laboratory before being released to the paint finishing departments.

A Survey of Paint Application Methods

A series of articles on painting methods have been reprinted as a 64-page booklet.

Chapters in the report cover: 1) Use of the Spray Gun. 2) Conveyorized Spray Finishing; Automatic Spraying; Electrostatic Spray Painting. 3) Hot Spray; Airless Spraying; Steam Spray Painting; Spraying Catalyst Coatings. 4) Dipping Methods; Flow Coating. 5) Roller Coating; Tumble and Centrifugal Painting; Silk Screening; Aerosol Painting.

Reprints of *A Survey of Paint Application Methods* are available at 50 cents a copy. Write to PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio.

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Specific suggestions for controlling baking cycles and methods of application so as to produce wrinkle finishes of uniform color and texture . . .

Current Practice in Chemical Milling
A survey of chemical milling processes as they stand today; data on methods being used for cleaning, masking, etching and milling aluminum and other metals, such as magnesium and stainless steel . . .

How to Engineer an Automatic Plating Installation
What to consider when converting to automatic plating . . . specific recommendations on planning, type of machine, tanks, auxiliary equipment, racks, agitation, other factors . . .

Watch for these and other useful articles in PRODUCTS FINISHING, the Finishing Industry's most informative publication!

New Process for Plating on Light Metals

Zinc, zinc-titanium alloys and other metals can be electroplated directly on aluminum, magnesium and steel by new process. Coating formed can be plated with other metals by conventional plating procedures . . .

By **JAMES V. SHERIDAN**
Light Metals Plating Co.
Detroit, Mich.

The four light metals — magnesium, aluminum, titanium and zirconium—form an interesting study in contrasts. Magnesium and aluminum are easy to form, but are subject to corrosion. Titanium and zirconium resist corrosion without protective coatings, but are hard to form. Plating titanium or zirconium on aluminum and magnesium thus produces a product with advantages of both metals.

A new method of electroplating metals on aluminum and magnesium makes it possible to codeposit a small amount of titanium metal with zinc on aluminum. Although other metals also may be deposited, this combination is the one that shows most promise. It combines excellent properties of adhesion and corrosion resistance in hot atmospheres.

Developed by Carl Cooper of Grass Lake, Michigan, the new invention was first made known about a year ago, when laboratory work was deemed successful. Since that time extensive pilot-plant development has been done on the process, which is now being readied for commercial production.

The Cooper process can be used to electrodeposit on aluminum a coating that serves as the basis for subsequent plates of other metals. This is important, since plating metals directly on aluminum has usually been unsuccessful because of difficulties in securing good adhesion. Thus it is necessary to deposit a metal that will adhere well to the aluminum and upon which subsequent plates can be deposited in the normal manner.

In one of its alternatives, the Cooper process can be used to deposit an initial zinc plate. After the zinc has been applied, other metals can be applied by standard electroplating procedures to secure decorative finishes, wearing surfaces and solderable coatings.

Another method, the zincate process, is commonly used for the same purpose in plating of aluminum. It forms an immersion deposit of zinc upon which other metals can be de-

posited. The Cooper process differs from zincating in that the zinc is electroplated rather than immersion plated, and the plating solution is acidic rather than alkaline.

Metals plated from the Cooper process baths may be built up to any thickness desired, and they are said to have excellent adhesion to the basis metal.

Iron on Aluminum

Various metals can be electroplated directly on aluminum. For example, iron can be plated on aluminum. This permits production of an iron-plated alumium soldering tip which has excellent heat capacity and long life for continuous soldering on assembly lines in the electronics industry.

Zinc-Titanium Co-deposit on Aluminum

Probably the most promising plate of the Cooper process is a co-deposit on aluminum of a small proportion of titanium metal with zinc to produce unusual properties of adhesion and corrosion resistance in hot atmospheres.

An outstanding characteristic of the Cooper zinc-titanium plating process is its speed of deposition. For example, from 40 to 85 minutes may be required to electroplate a thickness of 2.0 mils of nickel using conventional procedures. By comparison, 2.0 mils of zinc-titanium can be deposited on either aluminum or steel in 10 minutes, or for some uses, in even less time. In this connection it may be noted that the Cooper procedures apply to steel as well as to aluminum.

The developer expects that a substantial proportion of nickel plating will be replaced by a zinc-titanium co-deposit.

Hard Chrome on Aluminum

Aluminum products requiring a hard chrome surface can be plated readily by the combination of a zinc-titanium co-deposit on the aluminum followed by standard chrome plating on the zinc-titanium layer. This combination provides corrosion resistance as well as the wear resistance of a chrome surface.

Solderable Surfaces

The makers of television and radio chassis as well as the electronics industry generally must solder aluminum or must solder certain parts to aluminum. The Cooper process can produce on aluminum an adhesive plate of zinc, a zinc-titanium co-deposit, and copper or nickel plates. Soldering can then be performed easily by ordinary soldering procedures. Electroplating of the zinc-titanium co-deposit on aluminum has permitted welding aluminum parts without the use of inert atmospheres or unusual fluxes.

Plating on Aluminum Alloys

Practically all aluminum alloys can be plated by the Cooper method. The only difference in handling of the various alloys involves modification of the cleaning process for alloys relatively high in silicon, magnesium, or copper. Once the metal has been cleaned, the plating procedure is exactly the same in all cases.

Although the Cooper procedures work successfully in electroplating metals on magnesium, pilot development in this area has not yet been completed.

Harshaw Announces Another Addition
to its growing family of Bright Nickel Plating Processes

The Harshaw Chemical Company has developed the SUPER NIBRITE BARREL BRIGHT NICKEL PROCESS to produce a lustrous and ductile nickel deposit by the use of only two brighteners, both of which are liquid addition agents. These addition agents are non-metallic, organic type brighteners designated as BBN #1 (the primary brightener) and BBN #2 (the secondary brightener).

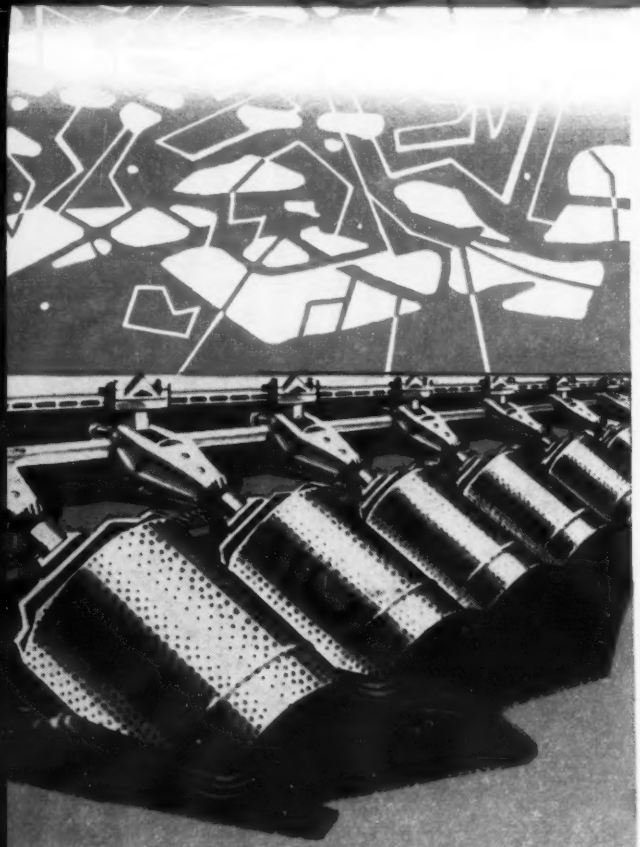
Among the many advantages of the SUPER NIBRITE BARREL NICKEL are its superior brightness, excellent leveling, ductility, ease of operation and control, tolerance to organic and metallic impurities, and its receptiveness to chrome plating.

HARSHAW

Harshaw Super NIBRITE

Barrel Bright Nickel Process

Leveling and Ductility. For a barrel nickel the SUPER NIBRITE nickel plate has amazing leveling and ductility over its entire operating range.



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Leveling and Ductility. For a barrel nickel the SUPER NIBRITE nickel plate has amazing leveling and ductility over its entire operating range.

Ease of Operation and Control. The recommended operating conditions for SUPER NIBRITE nickel are a pH of 4.0-5.0 and a temperature of wide range up to 140°F. The BBN #1 concentration can be high without any ill effect on the operation of the bath and since it is lost mainly only through drag-out, additions can be made in proportion to the nickel salts added to replace drag-out losses. The amount of BBN #2 used in any specific installation varies with the type of work, finish of the base metal, and the required finish. Additions can be made with ease prior to the end of plating time.

Tolerance to Impurities. SUPER NIBRITE solutions remain ductile and bright over long periods of operation due to the high tolerance of the solution to both organic and metallic impurities. There are no unusual breakdown products from the organic brighteners themselves and thus any measures taken to avoid severe contamination will result in trouble-free operation. Also carbon treatments and filtrations, if necessary, can be performed without undue loss of the brighteners.

Extended Periods of Idleness. SUPER NIBRITE baths can be operated after extended periods of idleness without sacrificing loss of brightness or ductility.

Speed. The greater conductivity and faster plating rates obtained by operating the solution at 140°F can be used to great advantage by reducing the plating time for a desired finish up to 50%.

Contact the Harshaw Branch nearest you. Harshaw representatives will be happy to discuss with you the application of this process in your plant.

For more data circle 334 on Postpaid Card

A Review of Organic Coatings

By HAROLD A. POLLAY
Chief Chemist
The Chemical Coatings Corporation
Rocky Hill, Connecticut

A description of organic coatings commonly used by industry today, together with a discussion of the properties of each . . .

Purposes of Coatings

The two main purposes of organic coatings obviously are to provide *protection* and improve *appearance*. Coatings must protect metal from corrosion by moisture and chemicals. They must also resist chemical attack, perspiration and abrasion, weather, ultra-violet rays, temperature changes, heat and fungus. Normally, an organic coating is formulated to withstand specified conditions encountered by the product being coated. This procedure is arrived at for reasons of economy. Generally speaking, a coating is meant to give its most effective service during the expected life of the product being coated.

From the appearance standpoint, we are concerned with the sales value derived from the color, gloss and texture of the applied coating. Competition often forces improved appearance through design and coatings. But any increase in the cost of the product has to be justified by increased sales.

Surface Preparation

A brief word concerning surface preparation is certainly in order in any discussion of coatings. The success or failure of any coating depends in large part on the condition of the surface of the substrate prior to application of the coating. The surface of such metals as brass, nickel, chromium, copper, tin, and so on, must be chemically clean. Adhesion to such surfaces is always a problem, and a clean surface is mandatory for best adhesion. Everyone concerned with the application of organic or inorganic coatings is cognizant of this fact. Carelessness in surface preparation may result in a poor coating performance, which is often blamed on the coating instead of the improper surface preparation. It would be impossible to over-emphasize the necessity of having a clean surface prior to the application of any type of coating.

The surfaces of such metals as steel, aluminum, zinc, magnesium and cadmium should likewise be

chemically clean; but in addition, it is desirable that they be chemically treated with a phosphate coating. This procedure results in an acidic rather than an alkaline condition on the surface and prevents coating breakdown caused by alkaline reaction. It also gives "tooth" to the applied coatings, ensuring excellent bond or adhesion.

Smooth metal surfaces lack a secure bond for positive adhesion. Corrosion occurs and spreads once moisture or chemicals penetrate the film to the substrate—as they always do sooner or later, depending upon the type and thickness of the applied film. It is possible, in some cases, to make organic coatings with sufficient adhesion for good durability without the aid of an etched surface. But more positive results can be obtained if such is provided.

Some of the more recently developed coatings provide adhesion so excellent that a chemically clean surface provides adequate base for positive adhesion. Cleanliness is the one factor which is vital in such cases. It should be noted that whereas it is sometimes possible, by use of special additives, to gain adhesion to unclean surfaces, the overall performance is in no case equal to that of the same coating applied to a chemically clean surface.

Air-Dry Coatings

Organic coatings may be separated into two groups: those that require force drying or baking, and those that will dry by solvent evaporation.

The following is a review of air-dry coatings in current use.

Nitrocellulose Lacquers

Nitrocellulose lacquers are widely used in industry. Perhaps their most outstanding property is their speed of air drying—almost instantaneous. Their biggest drawbacks are the expensive solvents used and their flammability. Other properties of nitrocellulose lacquers can be summarized as follows:

Durability—Good
Ease of Touch-up—Excellent
Adhesion—Good
(best over primer)
Abrasion Resistance—Good
Heat Resistance—Poor
Film Build—Poor (somewhat improved if hot spray used)
Ultraviolet Resistance—Fair

Ethyl Cellulose Coatings

Ethyl cellulose coatings have many of the properties of nitrocellulose lacquers, but differ in that

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they are less flammable than nitrocellulose lacquers, more thermoplastic and more flexible without modification, and use lower-cost solvents. Other properties may be summarized as follows:

Drying Speed—Fast
Adhesion—Good
(best over primer)
Dielectric Properties—Fair
Abrasion Resistance—Fair

Cellulose Acetate Butyrate Coatings

Cellulose acetate butyrate coatings are newer than nitrocellulose and ethyl cellulose lacquers. They have several interesting properties, among which are excellent resistance to ultraviolet light, and good color. Their biggest drawback is their limited compatibility with other film formers. Other properties may be summarized as follows:

Drying Speed—Fast
Heat Resistance—Excellent
Adhesion—Excellent over aluminum, fair on other metals (heat improves this)
Abrasion Resistance—Fair

Chlorinated Rubber Coatings

Chlorinated rubber coatings are outstanding for their fast dry and high film build, which results from high solids at low viscosity. They are non-flammable. This fact coupled with the fact that they have excellent resistance properties makes them interesting for a variety of applications. Lowering the comparatively high cost of these coatings would result in increased usage. Other properties of chlorinated rubber coatings can be listed as follows:

Drying Speed—Fast
Dielectric Properties—Excellent
Adhesion—Good, even on bare metal
Chemical Resistance—Good
Abrasion Resistance—Good

Vinyl Polymer Coatings

Vinyl polymer coatings are noted for their general high quality and good chemical resistance in an air-dry coating. These coatings are very thermoplastic, which is sometimes an advantage, but is a disadvantage when it comes to fabric coatings. Other properties can be summarized as follows:

Drying Speed—Fast
Chemical Resistance—Excellent (both acid and alkali)
Flexibility—Excellent
Abrasion Resistance—Excellent
Low-Temperature Flexibility—Good to excellent, with some sacrifice in abrasion resistance
Dielectric Properties—Good
Heat and Light Resistance—Fair, when stabilized
Durability—Good, when stabilized
Adhesion—Good on bare metal, better over primer

Acrylic Coatings

Acrylic coatings are comparatively expensive, but possess some unusually attractive properties, such as their excellent color (water-white and crystal-clear) and their resistance to discoloration at high temperatures, which is an attractive property for coatings that are baked. These coatings form an excellent base for phosphorescent coatings. They are often modified with such film formers as nitrocellulose

to improve surface hardness and dry without undue loss of the good properties of acrylics. Other properties can be summarized as follows:

Heat Resistance—Excellent
Adhesion—Good (better when force dried with heat)
Abrasion Resistance—Poor, except for some of the harder types
Air Dry—Poor because of slow solvent release

Styrenated Alkyd-Vinyl Toluene Coatings

These coatings are notable for their speed of dry (not as fast as lacquer, but fast for a synthetic, although it is affected somewhat by high humidity) low price, and for their uniformity of pattern formation when used in hammertones and malletones. Other properties of styrenated alkyd and vinyl toluene coatings are as follows:

Film Build—Good
Color and Gloss Retention—Good (Color retention during baking is better for styrenated alkyds than for vinyl toluenes)
Adhesion—Good (vinyl toluenes have better adhesion than styrenated alkyds)
Abrasion Resistance—Poor
Effect of Overcoating—Have tendency to lift

Alkyd Coatings

Alkyd coatings are widely used for exterior service on automobiles, trucks and buses, since they have excellent exterior durability, especially when baked. The alkyd automotive coatings are not strictly air dry: they contain a minimum amount of thermosetting resin to improve baking speed and abrasion resistance. Other properties can be summarized as follows:

Drying Speed—Slow, in the four-hour-enamel class; slow through dry
Film Build—Excellent
Abrasion Resistance—Good
Gloss, Gloss Retention—Good
Adhesion on bare metal—Good; tendency to lift on overcoating
Durability—Excellent
Cost—Comparatively low

Polyurethane Coatings

Polyurethane coatings are one of the newer types of organic coatings. They are available in one- and two-component systems. The possible combinations that can be used to make polyurethane coatings is almost unlimited, and therefore much will probably be heard of them in the future. Properties of the polyurethanes can be summarized as follows:

Drying Speed—Fair
Abrasion Resistance—Excellent

"I hear you buzzards in this old plant are desperate for good sprayers—"

". . . the excellent quality of these coatings (alkyd-urea-melamines) is hard to beat."

Flexibility—Good
Adhesion—Good on most metals
Gloss and Gloss Retention—Excellent
Chemical Resistance—Good
Film Build—Excellent
Light and Heat Resistance—Poor

Two-Component Epoxy Coatings

These coatings are used primarily on exterior masonry surfaces, where they are useful for their excellent resistance to alkalis and moisture. Adhesion on molded phenolics is outstanding. A low curing temperature is often used to speed the final dry. Other properties of the two-component epoxies can be summarized as follows:

Drying Speed—Moderately fast
Abrasion Resistance—Excellent
Adhesion—Excellent on most surfaces
Film Build—Excellent
Heat and Light Resistance—Good

Emulsion Coatings

These are emulsions formed by alkyds, acrylics, latex and so on, with water. They are non-flammable, and are now in use as automotive primers. Since non-flammability and potential low cost are both attractive features, these coatings may well become more popular once some of the drawbacks have been overcome.

Baked Coatings

The following coatings are formulated strictly for applications where baking is possible and desirable.

Alkyd-Urea-Melamine Coatings

These are the most commonly used baked coatings. For products that do not have to withstand severe chemical exposure, the excellent quality of these coatings is hard to beat. When these coatings are formulated to have good mar resistance, it is difficult to apply a second coat of the same material and obtain good adhesion of the second coat. Other properties can be summarized as follows:

Film Build—Excellent
Durability—Excellent
Adhesion—Excellent
Abrasion Resistance—Excellent
Chemical Resistance—Fair to Good
Color and Color Retention—Good
Heat Resistance—Good
Flexibility—Good
Flow and Leveling Properties—Good

Phenol-Formaldehyde Coatings

Phenol-formaldehydes are among the "old timers" when it comes to synthetics. They have certain drawbacks, but also have other properties which are difficult to match. To overcome some of the disadvantages and retain some of the good features of these coatings, phenolic intermediates are often coupled with epoxies to obtain a combination of flexibility and good acid, alkali and salt-spray resistance. Properties of phenol-formaldehyde coatings are as follows:

Durability—Excellent
Salt Spray and Humidity Resistance—Excellent
Acid, Alkali and Chemical

Resistance—Excellent
Abrasion Resistance—Excellent
Flexibility—Poor
Color and Color Retention—Poor
Leveling and Wetting Properties—Poor

Pure Epoxy-Urea-Melamine Modified Coatings

This is currently one of the most outstanding classes of coatings, in spite of its high cost. One of the best all-inclusive coatings, it is outstanding for its extreme surface hardness. Properties can be summarized as follows:

Adhesion—Excellent on all surfaces
Abrasion Resistance—Excellent
Perspiration Resistance—Excellent
Alkali Resistance—Excellent
Solvent Resistance—Excellent
Acid Resistance—Good
Color and Color Retention—Good
Heat Resistance—Excellent
Durability—Excellent
Flexibility—Good, considering the excellent hardness

Epoxy Ester Coatings

This coating should not be compared with a pure epoxy coating. It falls somewhere in between a high-grade alkyd and a pure epoxy. Chief application of this coating is as a primer for appliances. Metal lithographers also use the coating for its combination of flexibility and chemical resistance. Its properties may be summarized as follows:

Flexibility—Excellent
Adhesion—Excellent on metals
Chemical Resistance—Good
Color and Color Retention—Good

Novelty Coatings

There are certain coatings which have become known as "novelty" coatings even though their use has become almost standard in many cases. Among them are wrinkle finishes of varying textures, veiling lacquers, crackle lacquers, hammertone finishes, multi-color lacquers and pearl essence finishes.

Conclusion

Constant research is being carried on in the chemical coatings industry, and every industry having a by-product is exploring its possible use in our field. We can look forward to an ever-increasing number of new coatings with outstanding properties to meet the expanding needs of industry. That which appears today to be an impossibility will tomorrow be a reality—the results of research!

"Just drive your usual way, dear. We want to test the abrasion resistance of this finish."

Selecting Cleaning and Surface-Preparation Equipment

Cost-saving ideas that aid in modernizing old equipment and installing new equipment . . .

By S. J. BARLETT
Manager of Equipment Sales
Metal Processing Department
Pennsalt Chemicals Corporation
Philadelphia, Pa.

Proper cleaning and surface treatment of metal products prior to finishing cannot be overemphasized. Without effective pretreatment, the best finishes and finishing techniques can't produce good quality finishes.

Materials

Many different cleaning compounds and conversion coatings and various types of machines and procedures will accomplish proper cleaning and surface preparation. Choice of the material and machine depends upon the type of metal being processed; the soils that must be removed; the type of finish to be applied subsequently; the size and shape of the parts; the service conditions under which the part must perform; and the quality desired.

Where metals are to be finished with organic coatings, both cleaning and phosphatizing are important to produce a quality finish. Cleaning removes the soils, helps prevent corrosion, increases adhesion. Phosphatizing measurably increases corrosion resistance; prevents electrochemical corrosion beneath the paint film; provides lasting adhesion; makes it possible to paint finish and then form such items as bottle caps, venetian blinds, cans, and so on by increasing adhesion to the point where the coatings are not damaged by the forming operation.

Equipment

Cleaning equipment should be tailored to the plant and the task to be performed. When equipment modernization or replacement is planned, several factors should be considered during the preliminary investigation: (1) location in the plant; (2) parts or products to be processed—their size, shape, degree of contamination; (3) available facilities — electricity, gas, steam, water, drains, and so on; (4) current cost of cleaning and treating

parts; (5) the production desired.

Multi-stage washers include both the cleaning and metal-preparation steps necessary in preparing metals for subsequent finishing. Machines with from two to six stages are used, depending upon the application. For example, five-stage machines are usually used in preparing such products as automobile bodies and appliance cabinets. The stages included in such a machine are cleaning, rinsing, phosphatizing, rinsing, chrome rinse. Three-stage machines are used where quality is desired, but is not a prime consideration.

Design Factors

Properly engineered cleaning machines have become especially important since the advent of conveyorized finishing. Since a breakdown in a machine that is part of a conveyorized setup brings the entire line to a halt, freedom from maintenance and ease of repair becomes very important. Operating and maintenance costs are equally important. Efficient equipment can lower operating costs and increase production, thereby lowering the cost per unit.

Here are some of the design details that will aid in engineering efficient, dependable cleaning machines:

1. Vertical immersion pumps should be used wherever possible, to avoid leakage and packing problems. Motors on such pumps can be replaced easily.

2. Perforated water-flush-out pipes on at least two sides of solution tanks will reduce downtime when cleanout is necessary.

3. Sloped tank bottoms also reduce time required for cleaning tanks.

S. J. Barlett

4. Stainless steel screens, while more expensive, are more economical in the long run, since they won't rust or clog.

5. Doors used to adjust spray nozzles should be easily accessible.

6. Proper tank-to-pump ratio provides ample time for soils to separate from solution. Normally three to one is about right.

7. Chip and lint trays that can be removed easily help to prevent contamination of solution and prolong pump life.

8. Ventilation fans equipped with drains to remove condensate prolong equipment life.

9. Properly located exhaust nipples prevent heat and vapor loss.

10. All movable parts should be easy to reach for quicker maintenance.

11. Spare risers with nozzles inserted should be purchased with the machine. They will save down-time if nozzles become clogged.

Maximum performance of equipment can be obtained only through systematic maintenance and service. Equipment suppliers are familiar with their products and can usually provide these services.

Editor's Report on 1958 Paint Convention

Paint Industry leaders see bright future for water-thinned paints . . . silicone coatings to find increased use

At the 36th Annual Meeting of the Federation of Paint and Varnish Production Clubs, held in Cleveland Oct. 5-8 concurrently with the 23rd Paint Industries' Show, several significant developments and trends in the field of product finishes were reported.

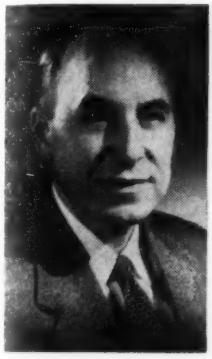
High point of the meeting was the Annual Joseph J. Mattiello Memorial Lecture, delivered by Dr. Eugene G. Rochow, Professor of Inorganic Chemistry, Harvard Univerity. Dr. Rochow, whose lecture was entitled, "In Pursuit of an Ideal," enumerated some of the many contributions of the late Dr. J. J. Mattiello to the protective coatings industry and marveled at Dr. Mattiello's tremendous energy, persistence and patience.

Looking to the future of protective coatings, Dr. Rochow charged the group to produce better paints each year, abandoning any possible consideration of "planned obsolescence." Pointing out that the ideal finish should last for the life of the product coated, Dr. Rochow stated that until a painted automobile can stand out in the weather for the entire life of the car, the paint finish can not be considered to be completely satisfactory.

Dr. Rochow, in considering some of the directions that the industry should take in developing more durable coatings suggested: inorganic polymers, "flexible" ceramics, silicone polymers, silicone-organic combinations. Vitreous enamels having more elasticity and flexibility would

be very useful in many applications.

Dr. Rochow stated that silicone coatings represent a step toward the ideal finish. At the present time such coatings at room temperature will last five years or much longer; they will last for a long period of service at temperatures of 150 to 500 deg. F., and even at temperatures of 1100 deg. F.



Dr. Eugene G. Rochow

Modification of the silicones with other materials produces finishes with many desirable properties. Methyl phenyl silicones, aluminum-silicone finishes, and silicone-alkyd products were among the combinations mentioned.

It is desirable to develop silicone-modified finishes that will cure in existing finishing equipment, so that industry will be more ready to accept the new materials.

A panel discussion on "New Developments in Epoxy and Urethane Coatings" included presentations by Dr. M. E. Bailey, manager of application research, National Aniline Division; R. G. Fortener, manager coating service development laboratory, Jones-Dabney Co.; Dr. W. J. Remington, Elastomer Div., E. I. du Pont de Nemours & Co.; and H. W. Howard, member of the sales manager's staff, Shell Chemical Corp. (Fig. 1).

Dr. Bailey discussed isocyanate reactive coatings, pointing out that such coatings cure by means of a chemical mechanism. In contrast, lacquers form their film by evaporation of the solvent. Properly formulated and cured urethane coatings have greater hardness than epoxies or alkyd coatings and gen-

Fig. 1—Panel members who discussed "New Developments in Epoxy and Urethane Coatings." Shown (left to right) are: Dr. Herbert L. Fenburr, Hanna Paint Co., session chairman; Dr. M. E. Bailey, National Aniline Division; R. G. Fortener, Jones-Dabney Co.; H. W. Howard, Shell Chemical Corp; Dr. W. J. Remington, E. I. du Pont de Nemours & Co. M. Rhodes, National Aniline Division, moderator of the panel, is at speaker's stand.

erally appear to have better properties, Dr. Bailey stated.

Dr. Remington discussed the formulation of a stable one-can urethane system that requires no catalyst or hardener. He discussed methods of formulating urethane coatings to secure the desired properties in the cured film.

Mr. Fortener described epoxy resins as resins giving the coating formulator the maximum in flexibility, adhesion, and resistance. Stating that epoxies are the most misunderstood of the resins, he outlined several points in proper application of a two-system, room-temperature-converting type where the film is formed or the coating is cured by chemical reaction. If the two systems are mixed and applied immediately, the coating is unsatisfactory. However, if the two materials are mixed and allowed to stand 45 minutes before application, then the resulting coating is satisfactory. Film thickness should be limited to 2 mils thickness of the dry film per coat. The second coat should not be applied until after 40 hours cure at room temperature.

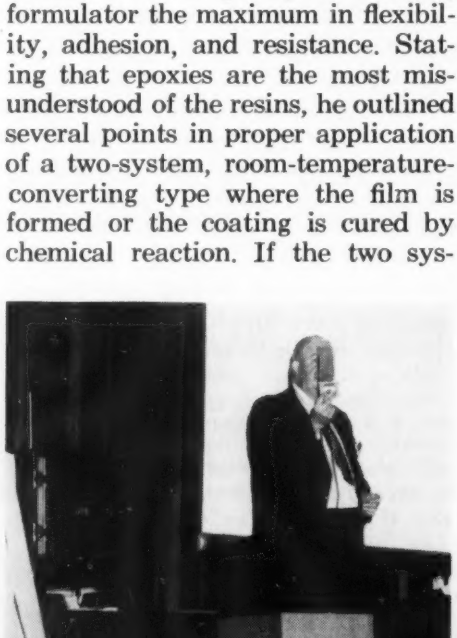


Fig. 2—H. W. Howard, Shell Chemical Corp., demonstrates the coating of a piece of expanded metal in a fluidized dry powder bed.

Epoxies recently developed have improved resistance to pure water. Two coats on bare steel or aluminum, applied 40 hours apart, have developed a film that shows excellent resistance to corrosion. Two-package finishes show promise for maintenance finishes. Tests show that epoxy coatings have better chemical resistance, are less affected by mildew, and show less filiform corrosion from the edges of the test panels.

Mr. Howard described the spray application of a 100-per cent solids coating containing no solvent and no water. This is a two-package system applied from two pressure pots by special spray guns and equipment. The two materials are applied to the surface simultaneously and cure rapidly. They are held at elevated temperature and metered out in the correct proportions by gear pumps. The spray gun head mixes the two materials (Figure 4).

Mr. Howard then described and demonstrated (Fig. 2) the application of a 100-per cent solids coating by the use of dry paint or dry powder. The very fine dry powder is

Fig. 3—Members of the panel on "Water Thinned Paints for Industrial Use" are (left to right): F. J. Stickle, American Cyanamid Co.; Dr. H. C. Cheetham, Rohm & Haas Co.; C. R. Hendrickson, Glidden Co.; R. L. Sears, Acme Quality Paints, Inc.; C. Thorstad, Jones-Dabney Co.; W. E. Mitchell, General Motors Corp.; R. A. Boller, Archer-Daniels-Midland Co.; M. C. Carpenter, Dow Chemical Co.; R. D. Hamilton, Ford Motor Co., moderator.

suspended by a slight current of air to form a "fluidized bed." The metal product to be coated is heated and immersed in the suspended powder or dry paint. A coating is formed on the hot metal. The coated product is then placed in an oven to cure the coating. The film thickness is controlled by the immersion time and temperature of the immersed metal. Coatings with thicknesses of 5 to 30 mils are relatively easy to produce and control. It is difficult to produce a coating thickness of 2 mils or less consistently.

A panel discussion on "Water Thinned Paints for Industrial Use" revealed that water-based finishes are rapidly gaining popularity as coatings for metal products.

The panel discussion was conducted by R. D. Hamilton, Process Development Section, Ford Motor Co.; F. J. Stickle, Product Sales Department, American Cyanamid Co.; C. Thorstad, Service Department, Resins and Chemicals Div., Jones-Dabney Co.; M. C. Carpenter, Latex Div., Dow Chemical Co.; C. R. Hendrickson, manager, Industrial Emulsions Laboratory, Glidden Co.; R. A. Boller, technical service engineer, Archer-Daniels-Midland Co.; R. L. Sears, supervisor, Automotive and Industrial Finishes Laboratory, Acme Quality Paints, Inc; W. E. Mitchell, general manager, Paint Standards Section, Fisher Body Div., G.M.C.; Dr. H. C. Cheetham, sales manager, Resin Products, Rohm & Haas Company (Figure 3).

Mr. Hamilton stated that there has been more change in automobile finishes in the last four years than in the preceding twenty. Discussing the use of water-based finishes in Ford plants, he stated that Ford frames are being dipped at the present time at the rate of 600/hour. Frames are also being flow coated in another installation, and bodies are being dip coated also. Springs and other parts are being dipped.

The tendency of water-based finishes to produce foam in dip tanks or spray booths was one of the problems that had to be overcome.

Mr. Hamilton pointed out that water-emulsion painting installations require no exhaust equipment and no fire control equipment. Major savings in fire insurance costs can be realized.

Mr. Stickle commented that additives to water-based coatings to control foaming may detract from the quality of the finish. Pigments used in the formulation must be se-

". . . physical properties of water systems may be developed to surpass those of present solvent systems."

lected carefully since their effect is not the same as in conventional finishes. Paint manufacturers need to develop water-based formulations "from the ground up."

Mr. Thorstad discussed problems of formulation to produce finishes which can cover as wide a range of applications as possible. Methods of formulation to secure good wetting of the pigment by the resin in the dried film were discussed.

Mr. Carpenter discussed the advantages of latex emulsion polymer systems, stating that such finishes showed better salt fog resistance, better corrosion resistance and adhesion than conventional systems. Further, latex primers showed better chip resistance, better flexibility retention, better impact resistance, and better corrosion resistance than conventional systems. Mr. Carpenter stressed the need for an educational campaign to explain to metal fabricators and finishers the difference in the water and solvent paint systems. He predicted that within ten years latex systems would be in use in the majority of manufacturing and finishing plants.

Fig 4—J. M. Klarquist, Shell Chemical Corp., demonstrates the spraying of 100-per cent solids paint in the Shell booth at the Paint Industries' Show. A thickness of 18 mils is being applied in one coat. Equipment used includes two pressure pots, compressor, metering and pumping section to develop material pressure of between 250 and 400 p.s.i., preheaters, heated spray hose, and heated gun head. The gun head temperature is maintained at 170 deg. F. Note that no ventilation or exhaust is required.

Mr. Hendrickson stressed the need for a great deal of research to develop water-based coatings, but stated his belief that they would be used generally in the not-too-distant future. Application methods must be tailored to fit water-based paints, and finishing equipment must be modified as necessary. Pumps in circulation systems must be modified. In flow coat systems the nozzles must be designed for water paints; a similar adjustment must be made in spraying nozzles.

Mr. Hendrickson expressed the opinion that the physical properties of water systems may be developed to surpass those of the present solvent systems. There are indications that water-based paints may be expected to have better salt spray resistance and better color retention.

Mr. Boller discussed the use of water-soluble resins, which form

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Fig. 5—Booth of the Oronite Chemical Company stressed use of Oronite isophthalic for manufacturing resins used in making paints.

". . . paints have good stability in dip or spray systems."

clear water solutions, in formulating water-based paints. In using the water-soluble resins the paint formulator will find that:

1. The paint formulation is similar to that used for solvent systems.
2. He can use the same equipment for pigment dispersion.
3. Continuity of the paint film is the same.
4. Pigment build and gloss approach that of conventional systems; high gloss paints can be produced.
5. The paints have good stability in dip or spray systems.

Mr. Sears cited some of the reasons for the present demand for

Fig. 6—In the Archer-Daniels-Midland booth, Robert A. Boller, technical service engineer (center) "talks shop" with visitors about finishes based on water-soluble Aralon 1000 resin. Test panels at left show results of various tests on metal panels coated with finishes formulated with this resin as well as other materials. A-D-M recommends Arolon 1000-based finishes for use on various household appliances and office furniture.

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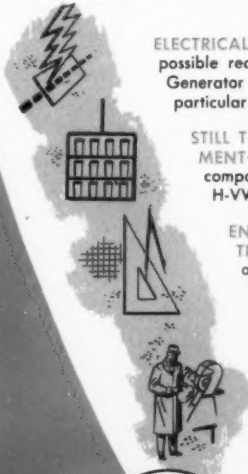

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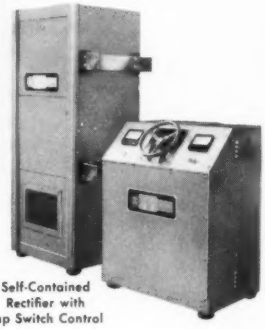

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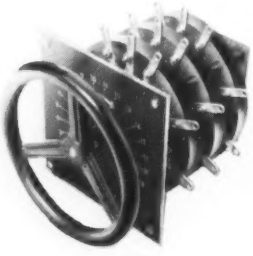
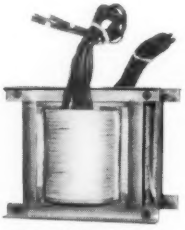
Germanium and Selenium Rectifiers . . . Rectifier Controls

Highest quality and efficiency, flexibility, economy and low maintenance are the characteristics combined in H-VW-M's full line of both Germanium and Selenium Rectifiers. 6 to 48 volt units—both remote and self-contained—provide the exact direct current low-voltage and high amperage required in aluminum anodizing. The widest possible choice of controls and control combinations is available. Such devices as manual or motor operated tap switch controls, continuously variable auto-transformers and saturable core reactors are used with or without supplemental controls to provide automatic voltage stabilization, automatic constant current as well as automatic programming.

Write for Bulletin ER-108, which gives further information about Rectifiers and Controls, plus useful control application suggestions.

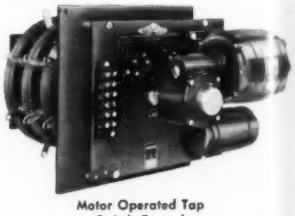


Manual Tap Switch Control



Saturable Core Reactor

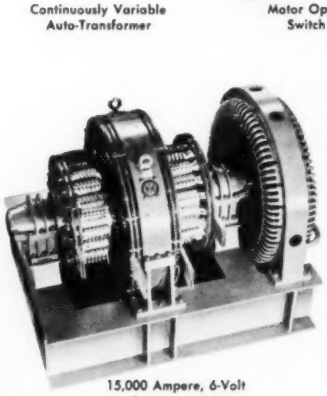
Continuously Variable Auto-Transformer



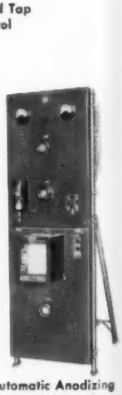
Motor Operated Tap Switch Control

Generators . . . and Controls

H-VW-M Motor Generators designed especially for metal finishing operations are built in sizes up to 50,000 amperes, and accessory equipment includes a full line of controls and control panels to cover any desired control function. Easy-to-maintain H-VW-M Motor Generators have exceptionally rugged and practical construction features insuring maximum performance and life. Standard voltage ratings range from 6 to 50 volts, and include the 18 and 24 volt units usually required for sulphuric acid anodizing, plus the 40 and 50 volt units used in chromic acid anodizing. Write today for 24-page Bulletin G-104, covering in detail all H-VW-M Generators.



15,000 Ampere, 6-Volt Generator Unit

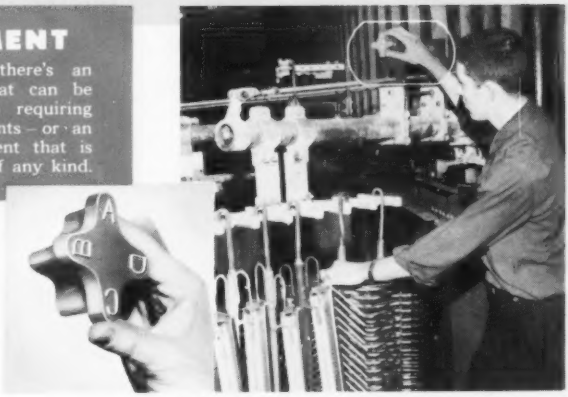


Automatic Anodizing Control Panel

Supplies, Equipment and Services Add Up Simplicity of Operation in Your Plant

PROCESSING EQUIPMENT

Whatever your anodizing procedure, there's an H-VW-M Full Automatic Conveyor that can be adapted to any production application requiring automatic cycling of individual treatments – or an H-VW-M Tank with accessory equipment that is perfectly adapted to still tank methods of any kind.



Automation in Metalfinishing— Fully Automatic Conveyors with Dial-A-Cycle

Workman "dials" desired cycle in refrigerator plant. Parts will by-pass or lower into baths as dial setting dictates.

H-VW-M's new DIAL-A-CYCLE system automates nine or more complete metalfinishing processes on a single anodizing or electroplating machine. This revolutionary by-pass mechanism can be used on any metalfinishing installation for anodizing, electroplating, or similar processing. It is especially useful and effects substantial cost reductions when a variety of parts requires several different processes or colors.

DIAL-A-CYCLE, as the name implies, is controlled by simple dial setting. The dial is mounted on the carrier arm that carries the parts through processing tanks. It is set by the machine operator for the processing steps through which each load of unfinished parts is to move. Automatic conveying then takes over, lowering the parts into the required tanks and bypassing others.

Different products, requiring different anodizing cycles, may be processed at the same time, with the same equipment. DIAL-A-CYCLE gives you new versatility while reducing operating, labor, and maintenance costs. Close, automatic control of transfer and immersion periods improves quality.

DIAL-A-CYCLE is the newest of many types of conveyors and equipment H-VW-M supplies to aluminum finishers. H-VW-M also designs, manufactures, and installs return-type conveyors . . . elevator conveyors . . . straight-line conveyors . . . and others. For a complete description of all types, write for Bulletin FA-105.

Tanks and Equipment

At H-VW-M – the plating and anodizing industry's work shop—you'll find tank equipment for every phase of your work. For chromic acid anodizing, H-VW-M double electric welded unlined steel tanks are offered, along with steel coil equipment for cooling and heating. The entire system is H-VW-M designed, supplied and installed. For sulphuric acid anodizing, lead-lined steel tanks, plus the necessary cooling coils and air agitation assembly, are supplied. Tanks are fabricated from hot rolled steel, stainless steel, and aluminum. Other types of tanks are also available. Bulletin No. T-108 gives full particulars about this important H-VW-M equipment. Every conceivable type of auxiliary equipment is engineered and supplied, according to customers specifications, including a complete packaged refrigeration system for anodizing solutions.

And H-VW-M's Engineering and Installation Service

Anodizing problems of *any* kind? H-VW-M is prepared to set up your entire anodizing system from beginning to end—a system made up of components scientifically engineered to work together with utmost efficiency. Because of this, and because of H-VW-M's continuing research and development in every aspect of the anodizing picture, you can be confident that the recommendation you receive from H-VW-M is the very *best*.

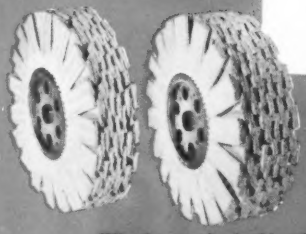
What's more, if requested, H-VW-M sees to it that the equipment you buy is H-VW-M *installed*. This means perfect, efficient operation from the start.

Add to this the fact that an H-VW-M technical representative—ready to serve you—is no further than your telephone. These representatives serve in principal cities across the nation. Get to know the one nearest you. He can help you get the most from your aluminum finishing equipment and supplies.

TURN THE PAGE FOR ALUMINUM BUFFING AND CLEANING SUPPLIES

ALUMINUM BUFFING AND CLEANING SUPPLIES

Since aluminum came into its own after World War II, considerable H-VW-M research and development work has been devoted to the perfection of buffs and compounds suiting the unique physical characteristics of this popular light metal. When long-wearing H-VW-M Buffs are used in conjunction with H-VW-M compounds especially formulated for aluminum finishing, you have the perfectly balanced combination for economy, efficiency and quality performance.

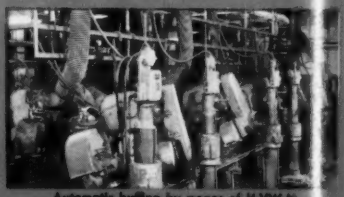


Buffs

Nowhere will you find a wider selection of the buffs you need for preanodizing operations than at H-VW-M. Whether you're looking for a super-heavy-duty buff like new steel-centered Ruff-L-Buffs (which are available untreated, or Binderized® for extra long wear) medium duty buffs like Triplex Buffs, or a buff for medium-to-light service such as the Full Disc Buff, you need look no further than H-VW-M. The full H-VW-M line includes new Tufta-Flex Buffs (cloth tufts) and Si al-Flex Buffs (with sisal-centered tufts).

Among this array you'll find the exact buffs for y ur aluminum finishing needs. Every one is character ed by first quality, uniform new material of close we ve and good weight . . . tight sewing with heavy thread and proper balance. Write for 12 page Bulletin B- 1, which describes H-VW-M's entire buff line.

Hand buffing using H-VW-M buffs, compounds.



Automatic buffing by means of H-VW-M Liquimatic System.

Compounds

For heavy duty cutting, H-VW-M Liquid Tripoli Compounds 303 and 420 were developed, and are now widely used in the cooking utensil industry. For the appliance, storm window, construction materials and automotive fields, H-VW-M's new Liquimatic Liquid Compound No. 728 has proved especially successful, giving excellent cut, while leaving the surface with deep, high color.

H-VW-M Bar Compounds also find broad use in aluminum finishing. A variety of tripoli bar compounds are offered in varying consistencies to meet all cut requirements. For cut and color, special white c pounds are available. And for high color, several H-VW-M aluminum oxide compounds—No.'s 6-B- 6-B-72 and 8390—give unusually good results. Write for Bulletin CO-103.

Cleaners

H-VW-M devotes constant research to the subject of cleaners in its search for ever better products in the aluminum finishing field.

Matawan Cleaners are designed specifically to give superior results in soak cleaning, power spray operations, oxide removal, and for special aluminum cleaning and etching operations. Of particular interest is H-VW-M's 85S Cleaner, which prevents scale formation, thus keeping coil and tank walls scale free. This unusual aluminum cleaner leaves an extremely bright surface, and, because of its built-in regenerator, makes maximum effective use of caustic in the bath.

In line with its desire to supply the exact cleaner for the job, H-VW-M offers its extensive laboratory fa ili-ties where circumstances demand a special cleaner.

When you think of aluminum finishing equipment and supplies—think of H-VW-M first. Buying from one dependable source . . . H-VW-M . . . means one company assumes full responsibility—your guarantee that you're getting the best . . . in products . . . in performance, in *extra* service.

PLATEMANSHIP

Your H-VW-M combination — of the most modern testing and development laboratory — of over 80 years experience in every phase of plating and polishing — of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING COMPANY, MATAWAN, N. J.
Plants: Matawan, N. J.• Grand Rapids, Michigan
Los Angeles, California (Alert Supply Co.)

SALES OFFICES: Anderson (Ind.) • Baltimore • Beloit (Wisc.) Chicago • Cleveland • Dayton • Detroit • Grand Rapids • Los Angeles (Alert Supply Co.) • Louisville • Matawan • Milwaukee New York • Philadelphia • Pittsburgh • Plainfield (N.J.) • Rochester San Francisco (Alert Supply Co.) • Stratford • Toledo • Utica Wallingford (Conn.) • West Springfield (Mass.)

H-VW-M

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES • EQUIPMENT • SUPPLIES

4756

Printed in U.S.A.

"Repairs in the baked film are difficult to make."

water-dispersed coatings: 1. reduced fire hazard; 2. reduced smog in cities; 3. improved outdoor durability of films.

The rate at which water-dispersed coatings are being adopted for industrial use is being slowed because:

1. Emulsion coatings are not as easy to apply as production use demands.
2. Top coats available at present do not have all the desirable properties of solvent-system top coats.

Mr. Mitchell said that the interest of his company in water-thinned paints is prompted by the desire to eliminate fire hazard and save thinners. He cited a number of problems involved in the use of water-dispersed primers and top coats. These included:

1. Flow properties difficult to regulate by the addition of water.
2. Comparatively low gloss retention of top coat. Not as good as conventional materials.
3. Foaming and air entrapment in circulating paint supply systems. Air bubbles are trapped and deposited in the paint film so that the dried film becomes porous.
4. Air-dry or set-up time is 10 to 15 minutes. This will require a change in plant layout.
5. Repairs in the baked film are difficult to make. Spot repairs are possible with conventional systems but not with water-based coatings. It is possible to use conventional paints to repair water-dispersed paint films.
6. Demineralized or distilled water must be used in water-based paints so that there are no solid

Fig. 7—Harshaw Chemical Company booth featured driers and pigments. The Hansa Yellow developed by Harshaw attracted a great deal of attention at the Paint Show.

For more data on advertisement on opposite page, circle 336 on Postpaid Card

". . . higher heat capacity of water caused some blistering problems."

impurities in the cured film.

Dr. Cheetham stated that the acrylics had been chosen by Rohm and Haas for development work on water-dispersed coatings. He stated that both primers and top coats had been developed for automobile, appliance, and metal furniture manufacturers. The coatings are thermosetting in nature, converting on baking to form a glossy film with good properties. The baking cycle suggested was 30 minutes at 350 deg. F.

In the general discussion advantages and disadvantages of water-thinned paint coatings were brought out. Mr. Hamilton stated that the 9,000-gallon dip tank being used in one plant to paint the unitized body understructure had not required cleaning in one year of operation. Further, he had noted less trouble in transferring operations from enamel to water-based paint than when the company had changed from lacquer to enamel many years before.

Mr. Carpenter stated that the higher heat capacity of water caused some blistering problems. Also, more energy was required to evaporate the water from the film.

Other points made included the fact that although primer costs—water versus solvent systems—were comparable, the cost of top coats in water-based systems was slightly higher. There are problems in spray application in the handling of overspray paint. Spray booth compounds for water-wash spray booths must be developed for use with water systems. Further, phosphate coatings for use under water-based paints must be modified. The coatings must be very inert so that there will be no reaction with the paint coating. One example of a production problem solved through the use of water-based paint is the painting of an assembly containing steel and rubber parts. The water paint will not harm the rubber.

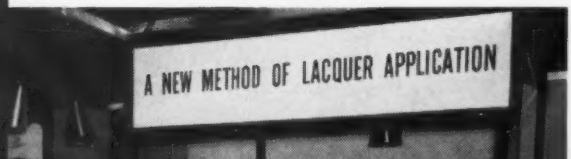


Fig. 8—In the Lacquer Information Center a Steinemann Pressure Curtain Coater was on display. Principle of operation of this machine is that of a brush. Paint is flowed out of an adjustable slot onto flat stock traveling through on a conveyor. Speed of the conveyor and opening of slot can be adjusted so that the exact film thickness desired is applied. Stock may be coated at speeds up to 400 feet per minute. (Photos by PRODUCTS FINISHING)

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

For more data on any product advertised in PRODUCTS FINISHING, use postpaid Reader Service Cards.

Now! A completely new ACP CHEMICAL TREATMENT package for aluminum fabricators

For etching and de-smutting

A NEW ALUMINUM ETCHANT (Aluminum Etchant No. 33) specifically designed to insure a consistently uniform etch pattern and etch rate without scale buildup on tanks or coils in industrial waters of any hardness.

A NEW DEOXIDIZER (Deoxidizer No. 1) which produces at room temperature a mildly etched surface that is ideal for spotwelding, de-smuts aluminum, and provides an excellent surface for subsequent treatments with ALODINE, or lacquering.

For protective coating

THE NEW ALODINE 1000 LIQUID, which produces a clear protective coating and reduces processing costs while maintaining top quality.

THE NEW ALODINE 400 PROCESS, which greatly improves the paint bonding qualities of aluminum and can be used as a decorative finish. It also materially reduces glare and improves the weathering characteristics of the metal.

For detailed information about these entirely new ACP chemical treatment products and processes for the aluminum fabricator, write us at Ambler.

ALODINE is a registered trademark of Amchem Products, Inc.

Amchem Products, Inc. Ambler 14, Pa.

Formerly AMERICAN CHEMICAL PAINT COMPANY

CHEMICALS ACP PROCESSES

DETROIT, MICH. • ST. JOSEPH, MO.
NILES, CALIF. • WINDSOR, ONT.

New Chemical Horizons for Industry and Agriculture

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finishing clinic

Suggested solutions to problems submitted by readers. Send your problem to our Editorial Staff. There is no charge.

Barrel Finishing and Plating

Question: *I am trying to barrel finish hand cuffs. The finish must be smooth and bright so as to obtain the best nickel plating possible.*

We have a reasonable amount of success with the deburring and grinding down of the hand cuffs. After burnishing, however, the surface is dull and the finish is not suitable for good plating. After plating the nickel is also somewhat dull and has many small pit marks.

Our barrel is a four-cubic-foot octagon-shaped rubber-lined barrel. I have used ½ by 1-inch aluminum oxide media at a 2½ to 1 ratio with a 75 per cent barrel load and a water level 2 inches below the mass, ¾ lb. of No. 82 Oakite compound, running time 10 to 12 hours, at 16 to 18 r.p.m. I find that these stones throw or force the hand cuffs to the outer diameter of the barrel so that they are not mixed well with the stones. What causes this? This might cause excessive nicking.

For burnishing I use Norton N stone ⅜ to ½ inch size 80 per cent barrel load, water level 2 inches over mass with ½ lb. Oakite No. 3 compound, running time approximately 2 hours at 16 to 18 r.p.m.

I will appreciate any comments or information you can furnish so that I can change or improve the tumbling method which I have outlined. Can any literature be purchased or obtained on barrel finishing?

T. J. S.

Answer: For information on barrel finishing, we should like to refer you to the companies listed on pages 30, 31, 32, 33 and 34 of the PRODUCTS FINISHING DIRECTORY. These companies manufacture and sell barrel finishing equipment and maintain customer service laboratories to assist customers with problems.

Additional information concerning your nickel plating problems can be secured from the companies listed on pages 144, 145 and 146 of the PRODUCTS FINISHING DIRECTORY. These companies supply nickel plating solutions and have competent technical personnel who can assist customers with problems.

Many barrel finishers have found that parts could be processed through the barrel finishing cycle in good order, but would become nicked or pitted during nickel plating. Whether you are experiencing the pit marks or nicks after nickel plating or after tumbling can be determined by examination and inspection. If the metal surface is not bright enough after barrel finishing, it possible that some of the suppliers of burnishing compounds can suggest a compound or process

cycle which will improve this surface condition.

It is possible that the reason for the movement of the parts being tumbled to the outside of the barrel is that the barrel speed is too great. Your barrel finishing supplier also can advise you regarding this point.

With reference to literature about barrel finishing, we are forwarding reprints of two articles published in PRODUCTS FINISHING. These are "Tiny Electronic Parts Tumbled to Precision Finishes" and "Barrel Tumbling: How to Get Best Results."

★ ★ ★

Plastisol Coatings

Question: *We have been experimenting with the use of plastisol as a possible finish for our items. We would sincerely appreciate any reprints of articles published in PRODUCTS FINISHING that are concerned with the use and production application of plastisol.*

S. F. P.

Answer: We are forwarding copies of the articles "Plastisol Coating of Wire Products," and "Plastisol Coating of Plating Racks and Tanks—A Job for Specialists."

We also suggest that to secure further information and assistance, you contact the companies listed in the PRODUCTS FINISHING DIRECTORY under the classification "Plastisol Coatings." These companies are listed on Pages 131 and 132.

★ ★ ★

Chrome-Like Paint; Bright Finish on Zinc Die Castings

Question: *In the April issue of PRODUCTS FINISHING, Finishing Clinic section (page 66), "Chrome Like-Paint" was noted. Will you please send us the list of companies recommended at that time, plus any additional information made available since April?*

In addition, perhaps you can direct us to sources of information relative to obtaining a bright finish on zinc die castings with sprayed-on plastic-film protection against discoloration.

J. L. S.

Answer: We are listing herewith the companies to whom we referred our original inquirer.

With reference to your request for information as to how to obtain a bright finish on zinc die castings, followed by a sprayed-on plastic film, we suggest that you contact the companies listed in the PRODUCTS FINISHING DIRECTORY under "Chromate Conversion Coatings" beginning on page 49.

For information on clear films to be sprayed on following the bright dipping process, we suggest that you contact the companies listed under "Lacquers" beginning on page 98 and "Paints, epoxy-based" beginning on page 122 of the PRODUCTS FINISHING DIRECTORY.

★ ★ ★

Hardcoating Aluminum Die Castings

Question: *We are quoting on an assembly that will be used in a fuel pump system. Our component will be an aluminum die casting and must be hardened by the Martin Hardcoating Process. The castings are four inches in diameter, one-half inch thick. They will have some tapped and recessed holes.*

We must obtain a vendor to perform this operation or a quotation on equipment to perform the process.

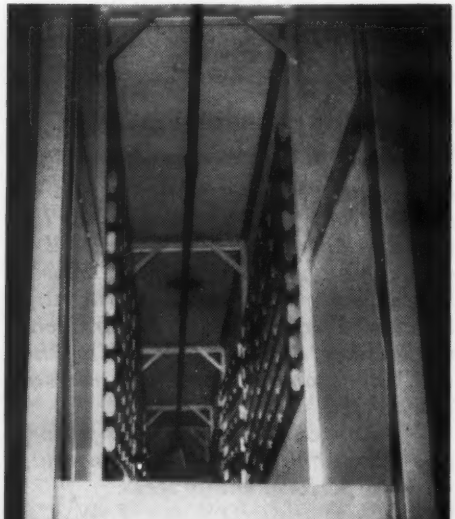
J. W. C.

Answer: We are recommending job finishing companies who can perform the treatment. Also, we are suggesting companies who can furnish the equipment required for doing this operation in your own plant.

Metal Fabricator Improves Production with Electric Oven

Air-dry finishes used to be no problem for McKinstry Metal Works, Chicopee, Mass., manufacturer of metal products. Facilities were adequate to handle most of the work being done, and when an item came in that had to be baked, it was "farmed out" to a shop that had an oven for finishing.

But the shop grew over the years and finishing became more of a problem. For one thing, the product line expanded to include a more diverse lineup of metal products—wiring troughs, panel boards, wiring boxes, control and instrument cabinets and assorted brackets and fixtures.



A look through entrance end of McKinstry Metal Works' new infrared oven shows radiant heaters mounted 15 degrees from horizontal to avoid "line of heat" on work. (Photo courtesy Edwin L. Wiegand Co.)

And then there was the problem familiar to almost every manufacturer: that order that comes in marked "RUSH!" Sometimes such orders were lost because the delay necessary to ship out items and wait for them to be returned was more than the hurry-up order would allow.

The variety of finishes — flat, wrinkle, hammertone, gloss and so on also became a problem. It would be much easier to stock parts unpainted and finish them in the desired type of coating after the order came in.

Costs became a factor: outside handling charges; shipping charges; and the inevitable damage to finishes that occurred in transit and had to be touched up—all added up to unnecessarily high finishing costs.

The answer was obvious: install an oven. But it would have to be a flexible heating arrangement to be of the utmost use in baking the wide variety of products and types of finishes applied in this shop.

The oven selected met these qualifications, yet was simply constructed: an electric oven, 2½ feet wide, 8 feet high and 32 feet long, constructed of 1½-inch angle iron and 4-by-8-foot insulating board panels bolted to the framing.

Heat is supplied by Chromalox electric radiant heaters. Forty-two are used, totalling 151.2 kw. Each heater, rated at 3.6 kw., 240 volts, has an overall length of 86 inches, heated length of 78 inches, and width of 3¾ inches. Power supply is 240 volts, 3 phase.

So that radiation on the work is

THERE'S A BETTER WAY. . . to protect your products!

Glidden finishes provide *real umbrella protection*—against heat, cold, humidity, corrosion, abrasion, fading, staining, impact and all other enemies of product finishes.

Custom-formulated Glidden finishes furnish the special protection your particular products need. What's more, Glidden Technical Service is the most thorough in the industry. Experienced technicians analyze finishing problems *in your plant;* make practical, helpful recommendations.

Make sure you get both—Glidden Finishes plus complete Glidden Technical Service—for *real umbrella protection,* whatever your product, process or problem.

QUALITY Glidden PRODUCTS

FINISHES FOR EVERY PRODUCT

The Glidden Company
INDUSTRIAL PAINT DIVISION
900 Union Commerce Bldg., Cleveland 14, Ohio

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"THE GLIDDEN UMBRELLA" of protection combines comprehensive technical service and custom-formulation of product finishes for all industry.

Oven Improves Production . . .

uniform throughout the oven, all heaters are mounted at an angle of 15 degrees from the horizontal. This avoids "lines of heat" on the work.

Flexibility was designed into the oven's controls as well as into the location of the heaters. Chromalox input controllers and toggle switches control top and bottom sections of heater banks in three heat zones. The oven is zoned as follows:

Four feet at oven entrance: unheated.

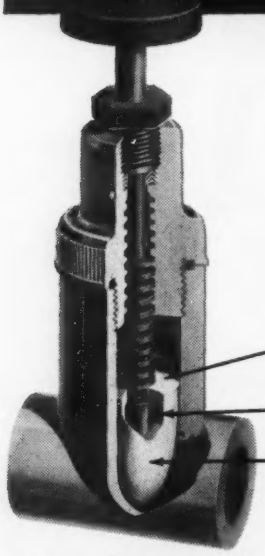
Heat Zone No. 1: 8-feet — 18 heaters, 9 on each side, 64.8 kw. total. Heaters on 7-inch centers. Six heaters at top each side and three at bottom each side are separately controlled.

Heat Zones Nos. 2 and 3: 8-feet—12 heaters each, 6 on each side and three at bottom each side, separately controlled.

Four feet at oven exit: unheated.

Operating temperatures are selected as required with a maximum of 425 deg. F. From a cold start the heatup time is approximately 10 minutes, which means that work can be started through the oven quickly in the morning. Oven is in use the entire day as a rule and when not used is

NEW! ALL-PLASTIC GATE VALVE



VANTON FLEX-PLUG* VALVE

½"-2" sizes

- No-pressure-drop construction of gate valve
- Throttling flow-control feature of globe valve
- PVC or styrene-copolymer construction
- Handles wide range of corrosives and slurries

- Back-seating feature of cap: when valve completely open, relieves pressure on packing.
- Free-to-swivel plug: provides even wear of cap, perfect closure.
- Flexible synthetic cap: easily replaced without removal of valve from line; minimal maintenance. Handles abrasive slurries without wear.

- All-plastic design — PVC or styrene-copolymer. Replaceable caps available in Neoprene, Buna-N, and Hypalon (Kel-F elastomer on special order).
- Suitable for vacuum—resilient cap makes excellent seal.
- Adaptable to all existing plastic pipe and fittings; especially suited to Vanton P, S, and N lines of plastic pipe and fittings.
- Rated for 150-lb. service—PVC line up to 140°F., styrene-copolymer line to 170°F.

*Pat. Pending

Catalog FP-1 gives full details. Write for it today!

VANTON PUMP and Equipment Corp. • Hillside, N. J.
DIVISION OF COOPER ALLOY CORP.

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Product: 99.75+% Pure
Service: 100% Sure

Every batch checked. Every can filled with a full weight of extra high quality 99.75+% Chromic Acid. Prompt delivery from ample factory and nearby distributor stocks. Why not order BFC Chromic Acid next time?

BETTER FINISHES & COATINGS, INC.

268 Doremus Avenue, Newark 5, N. J. · 2014 East 15th St., Los Angeles 21, Calif.

For more data circle 340 on Postpaid Card

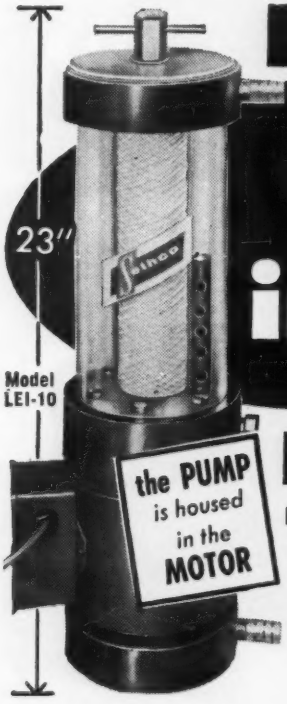
Oven Improves Production . . .

partially heated on a standby basis.

Capacity is approximately 2400 pounds of steel per hour, which provides a safe load margin at peak production. Conveyor speed can be adjusted between 2 and 6 feet per minute, while baking time is variable between 5 and 16 minutes, depending upon finish, size, conveyor speed and humidity condition.

The electric radiant oven has eliminated delays and increased productivity. Finishes are harder, scratches have been practically eliminated, and the end products have an improved appearance.

The oven was designed and built by F. M. Keefe Company, Indian Orchard, Massachusetts.



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Development of Electroplating Processes to Eliminate Hydrogen Embrittlement in High - Strength Steel. By J. E. Chilton, Stanford Research Institute, for Wright Air Development Center, U. S. Air Force. 84 pages. Order PB 131721 from O. T.S., U. S. Department of Commerce, Washington 25, D. C. Price, $2.25.

This report describes various baths and methods of preparing steel for cadmium plating without hydrogen embrittlement.

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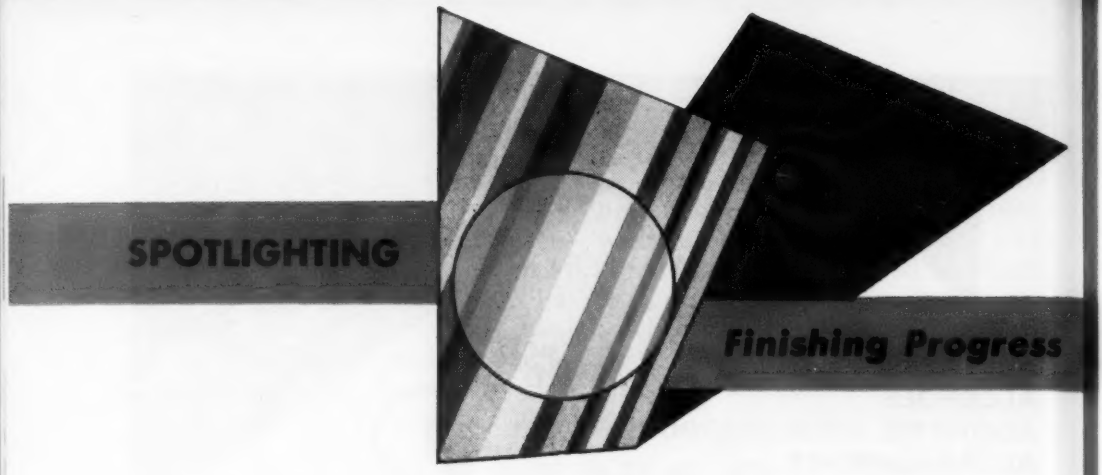

Vapor-Deposited Molybdenum

New chemical processes for depositing molybdenum on other metals have opened the door to wider utilization of molybdenum's favorable properties, according to Dr. H. W. Schultze, manager of New Chemical and Catalyst Development for Climax Molybdenum Company Division, American Metal Climax, Incorporated.

"With imaginative engineering, there is almost no limit to the scope of application for moly coatings produced by these new methods," Dr. Schultze told guests of Quantum, Incorporated's Industrial Symposium on New Materials and Their Fabrication, recently held in Wallingford, Connecticut. Covering recent advances in all fields of molybdenum technology, his talk was highlighted by a detailed description of two promising deposition processes—hydrogen reduction of molybdenum pentachloride, and thermal decomposition of molybdenum hexacarbonyl.

Dr. Schultze explained that despite recent advances in producing and fabricating molybdenum metal, there are many applications where it is economically or technically impractical to use the solid metal. Vapor-deposited coatings, however, make it possible to enjoy the advantages of molybdenum's corrosion resistance, wear resistance, and high strength at elevated temperatures, and at the same time, benefit from the desirable properties of the materials on which they are applied.

Molybdenum Pentachloride Reduction

The first process described by Dr. Schultze was the use of molybdenum pentachloride for vapor deposition of molybdenum. With hydrogen as the reducing agent, the reduction by-product is hydrogen chloride, which can be easily removed by means of a suitable pumping system, without contaminating the reduced metal. When reduction temperatures around 850 deg. C. are used, the resulting metal film is dense, with a well-developed grain structure.

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The molybdenum produced by vapor deposition is pure. Studies have shown that it can be deposited on other metals, ceramics, and graphite. It also has been found that the vapor-deposited molybdenum has high ductility. It machines easily, produces long curly chips.

Dr. Schultze cited tests conducted at Massachusetts Institute of Technology which show a high ductility for vapor deposited molybdenum. "Vapor deposited molybdenum has an extremely low oxygen content if care is taken in its preparation, and hence further annealing is not required if the only function is to remove oxygen," he said.

Dr. Schultze pointed out that there appears to be a critical relationship between oxygen and carbon content and quality of the molybdenum. For this reason care must be taken to eliminate these from the deposition system. The molybdenum pentachloride can be prepurified by means of a helium stream to remove any oxychloride that may form in loading the equipment.

The process for producing vapor-deposited molybdenum with molybdenum pentachloride is run at reduced pressures—in the order of 20 mm.

To page 82→

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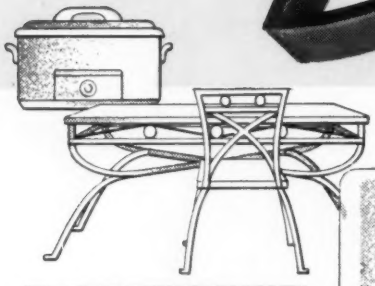

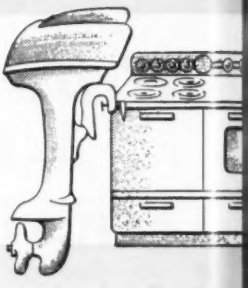

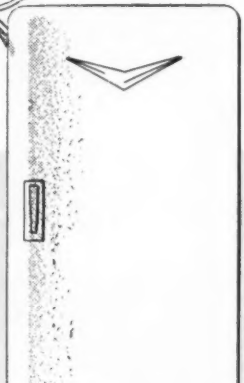

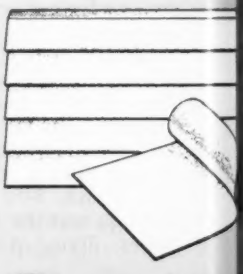

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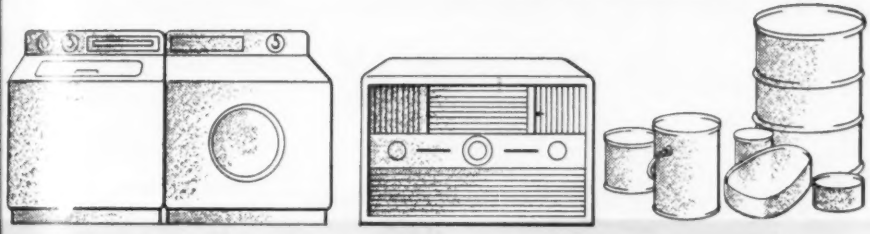

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Hg. Since molybdenum pentachloride melts at 194 deg. C. and boils at 268 deg. C., vapors can be readily obtained. The process operates best when hydrogen is in a large excess.

Thermal Decomposition of Molybdenum Hexacarbonyl

The second new method of coating with molybdenum discussed by Dr. Schultze was thermal decomposition of molybdenum hexacarbonyl, another vapor-phase process. This process produced molybdenum coatings of a quality approaching that produced by the pentachloride. Carbonyl deposition, although requiring careful engineering and control, can be modified to give coatings not only of molybdenum, but also molybdenum carbide or combinations of the two. Other molybdenum intermetallics can be deposited by varying the operating conditions.

The carbonyl process has the advantage of operating at lower temperatures than hydrogen reduction of pentachloride. At temperatures of 350 deg. C., molybdenum is deposited, and on raising the temperature, the carbide forms.

In describing the process, Dr. Schultze explained that an enclosed system is necessary. The piece to be plated is cleaned and heated.

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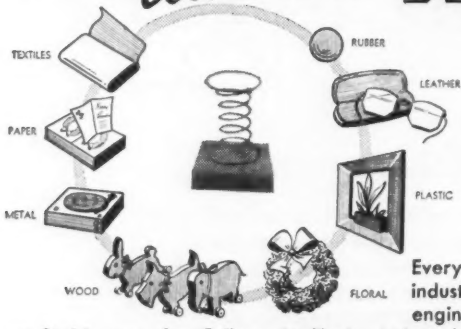

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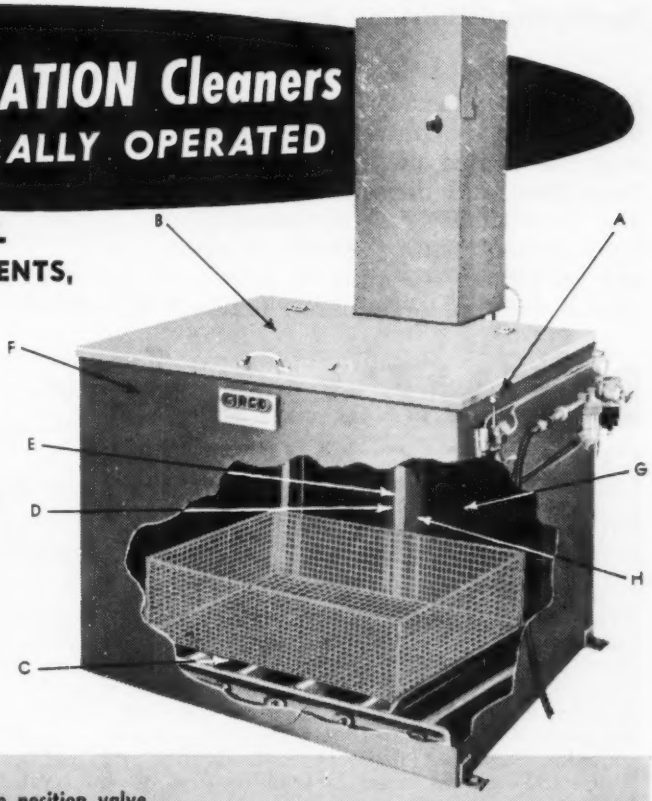

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It is expected that vapor-deposited molybdenum will increase the use of molybdenum in nuclear, electronic, and missile fields and others presently being explored.

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Paint Finishing in Industry. By A. A. B. Harvey. Published by Robert Draper Ltd., Kerbihan House, 85 Udney Park Rd., Teddington, Middlesex, England. 516 pages. Price, $12.00.

A complete discussion of industrial paint application. Includes sections on surface preparation and pretreatment, sanding, baking, masking and transfer techniques, flock finishing, silk screen printing.

Paint testing is covered in detail and basic information on solvents and paint materials is included.

One chapter is devoted to paint shop troubles and service complaints.

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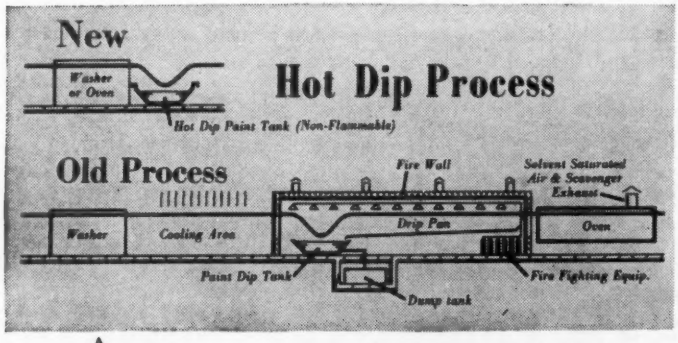

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A little over a year ago, the *St. Louis Post-Dispatch* first tried "Plus-4" Phosphorized Copper Anodes for acid-copper electroplating rotogravure rolls. J. Snyder, roto-engraving superintendent, and A. T. Primm, production manager, report they have averaged eight extra rolls for each tankload of "Plus-4" Anodes

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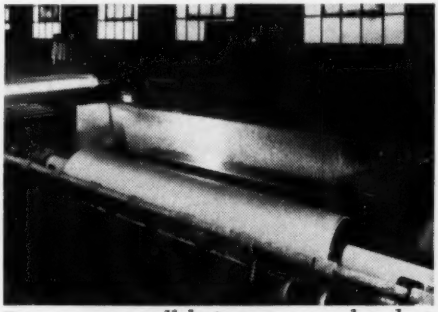

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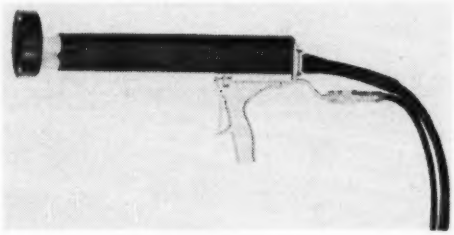
Hand-Held Electrostatic Spray Gun

A hand-held electrostatic spray gun recently introduced by Ransburg Electro-Coating Corp. makes it possible to apply paint electrostatically with a hand-operated spray gun.

Operation: Heart of the gun is a No. 2 Process atomizing bell similar to that used on the company's automatic No. 2 Process bell-type electrostatic installations. The atomizing bell is incorporated in a lightweight unit that is controlled by an operator.



Electrostatic Spray Gun: designed for safe hand operation, without conveyors.

Hand-operated electrostatic spray gun being used to paint a wrought iron chair.

A voltage pack connected to the gun by a flexible cable creates the electrostatic field. The article being sprayed is grounded, and thus attracts the paint particles, which are atomized in the electrostatic field as they fly off the edge of the rotating bell-type atomizer. No compressed air is used.

Coating material is supplied to the atomizer by conventional pump or pressure tank. Rotation of the bell feeds the paint to the edge of the atomizer.

Until recently all Ransburg installations have been conveyorized, mainly because of safety considerations involved in working with the high volt-

ages required for electrostatic painting. The hand gun is designed so that the high voltage can be used safely in a hand-operated gun, the manufacturer states.

Applications: Uses for the gun are found primarily in factories with production that is too low or too varied for use of automatic equipment. On certain types of articles, the gun is said to be considerably faster. This is true when painting articles fabricated from perforated and expanded metals, tubing, rod and wire. Full benefit from the wrap-around characteristics of electrostatic spray is attained in such applications, the manufacturer reports.

Like its automatic counterparts, the hand-operated electrostatic gun also keeps overspray to a minimum, reduces spray booth maintenance costs correspondingly.

Operating the gun requires no special skill, and techniques can usually be mastered during one day's production run, Ransburg reports.

Manufacturer: Ransburg Electro-Coating Corp., Indianapolis 23, Ind.

For more data circle 1 on Reader Service Card

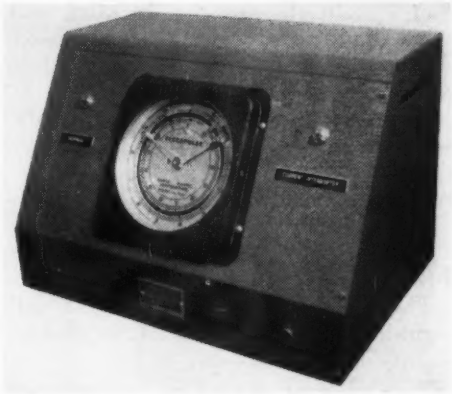
★ ★ ★

Current Interrupter

Description: Rapid Electric's Model CI-100 Current Interrupter is useful wherever timed intervals of current interruption are required. Automatically interrupts current, turns it back on at timed intervals from 0 to 120 seconds. Any combination of on-off current cycling is possible.

Features: Plugs into 115-volt a.c. line; pilot lights indicate normal and interrupted current; can be connected to any rectifier.

Applications: Current interrupter units are used to lower contact resistance during plating cycles. Contact resistance, the product of current and work resistance, develops as heat. To lower contact resistance, current is interrupted at timed intervals. During the period while current is off, the work depolarizes. Loosely plated particles and impurities tend to be removed by agitation of the solution during the current-off period. Higher current densities may be used without burning the work, it is stated. Higher current densities increase speed of deposition, of course.



Rapid Current Interrupter: higher current densities, faster plating, no burning

Manufacturer: Rapid Electric Co., 2881 Middletown Rd., New York 61, New York.

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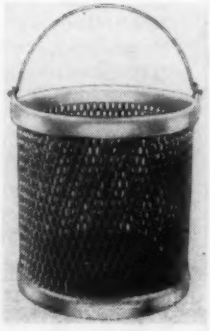
★ ★ ★

Dipping Basket

Description: An expanded-metal dipping basket is available in plain steel for use in cleaning and degreasing processes or with a plastisol coating for baskets that are to be used in corrosive solutions.



Dipping Basket

The plastisol-coated basket is

useful in bright dipping, pickling and other operations where acids are used.

These baskets also can be used in many centrifugal dryers.

Manufacturer: Plating Products, Inc., 1509 N. Washington, Kokomo, Indiana.

For more data circle **3** on Reader Service Card

★ ★ ★

Nickel Stripper

Description: Ni-Plex is a nickel stripper that can be used to remove coatings of nickel from steel, copper, brass, aluminum and die castings.

Properties: Non corrosive to base metals that are commonly nickel plated. Contains no cyanide, caustic or acid. Baths can be maintained at operating temperatures for long periods of time without loss of efficiency. Stripping rate of new bath is in excess of three thousandths of an inch of nickel per hour. One gallon of Ni-Plex will strip 54 square feet of a nickel plate 0.0001 inch thick. Should be used in stainless steel tank.

Bath Operation: Parts should be thoroughly cleaned first, as for plating. Stripping of plated die castings is aided by activation in 10 per cent hydrochloric acid bath to destroy passivity of the nickel plate. Parts may be suspended in the Ni-Plex bath with wires or they may be placed on racks or in baskets. Bath temperature: 175 deg. F. Parts should be drained well, then electrolytically cleaned, cyanide dipped or wiped and rinsed to remove smut. Bulletin gives complete details.

Manufacturer: Technic, Inc., 39 Snow St., Providence, R. I.

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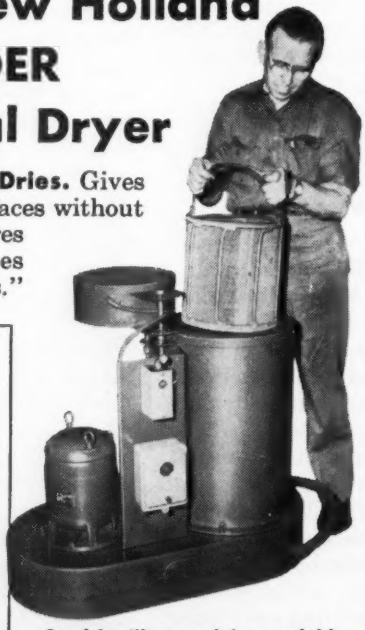
Model 20 New Holland KREIDER Centrifugal Dryer

Air-Dries . . . as it Spin-Dries. Gives smooth, moisture-free surfaces without scoring or marring... assures faster production . . . saves money wasted on "rejects."



SPECIFICATIONS:

1 hp motor—220, 440, 550 volts—2- or 3-phase. Spins 75-lb. loads at 825 rpm. Quiet V-belt drive. Arc-welded, steel-plate construction. Weight 490 lbs. Minimum floor space. Meets N.E.C. specs. Auxiliary electric or steam units available as optional equipment.

Send for illustrated 4-page folder. Address: Department PF-1158

NEW HOLLAND MACHINE COMPANY
NEW HOLLAND, PA.

For more data circle 352 on Postpaid Card

SPRAY

the rich texture of leather with vinyl Unichrome

COATING 6400

Quality finish: Coating 6400 is a smartly textured, baked vinyl with the traditionally fine appearance of leather, the modern mar-resistance of plastic. Hard yet flexible, chip-proof and corrosion-resistant, it outwears ordinary textured enamels by 10 to 1.

Economical application: it's *spray*-applied. No cementing, no seams, no scrap loss. Even complicated shapes are finished *fast*. Film thickness from 8 up to 40 mils. Select any color you like. Send for bulletin.

METAL & THERMIT
CORPORATION

GENERAL OFFICES: RAHWAY, NEW JERSEY
Pittsburgh • Atlanta • Detroit • East Chicago • Los Angeles
In Canada: Metal & Thermit—United Chromium of Canada, Limited, Rexdale, Ontario

For more data circle 353 on Postpaid Card

Copper-Brass Bright Dips

Description: Two powders for making bright dips for copper and brass are mixed with water to produce stable, non-fuming baths that are easy to control. Both produce surfaces that are passive after brightening.

Kenvert No. 30-C is intended primarily for brightening copper, but may be used on brass also. It is particularly effective in neutralizing copper plated parts before subsequent plating. It will work on cyanide or acid-copper plated surfaces.

Kenvert No. 30-B is formulated for use on brass, but may be used on copper also. It produces a surface that is an excellent base for lacquer, the manufacturer states.

Manufacturer: Conversion Chemical Corp., Rockville, Conn.

For more data circle **5** on Reader Service Card

★ ★ ★

Spiral-Wrap Abrasive Roll

Description: A spiral-wrap abrasive roll that can be installed or removed in less than two minutes is designed for use on nine of the ten models of Clair surface - finishing machines, thus converting any of these machines to abrasive - belt operation in addition to their normal uses with brushes, glazing and polishing rolls. Patent applications for the recently introduced wrap have been filed.

The roll is a cylindrical shell to which a rubber sleeve of ½-inch wall thickness is bonded. The sleeve can be made of any natural or synthetic rubber, to conform to resiliency requirements of individual applications.

The roll has indexing clamps at

Strainer Problems?
BUY BROUGHTON

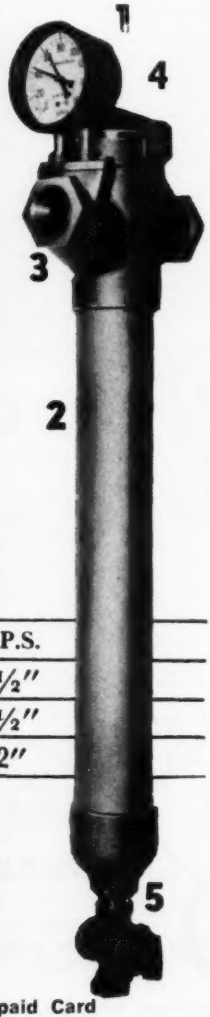
1 Heavy Duty Duplex Guage
instantly indicates pressure drop.

2 Non-Ferrous Metals Throughout
including stainless steel basket.

3 Sealed Against Short Circuits

4 Quick Opening Cap
for easy basket removal.

5 Quick Opening Valve
permits blow-down cleaning.



SERIES	LENGTH	G.P.M.	I.P.S.
650 A	12″	50	1½″
650 B	24″	100	1½″
650 C	36″	150	2″

other types available

A. E. BROUGHTON & COMPANY
Glens Falls, New York

For more data circle 354 on Postpaid Card

LOW COST PRODUCTION AND HIGH QUALITY WITH SLY CONVECTIONEERED OVEN

Drying oven with silhouette plates removed to show interior of oven. Baking oven is directly behind the instrument panel cabinet.

In order to meet the increased demand for its products, a prominent fan and blower company recently renovized its metal products finishing department.

The company installed two Sly Convectioneered Ovens: (1) a water dry-off oven — 24'-8" long, 9' wide, 8' high — to remove the moisture from the parts after leaving the washer and (2) a paint baking oven — 64'-8" long, 9' wide, 8' high — located adjacent to the dry-off oven.

Both ovens have the same basic design and differ only in length and heater capacity.

Automatic temperature and safety controls are part of the air heater equipment and protect the systems against flame, fuel, power, or mechanical failure. Actual runs show that from a room temperature of 70° F. a temperature of 350° F. is achieved in 12 minutes and maintained uniformly. Both drying and baking ovens are set up for 8-minute cycles.

Results of this installation: production materially increased and better finishes obtained, at very substantial savings! *May we discuss your requirements with you?*

Designers and Manufacturers of Dust Control Systems — Blast Cleaning Equipment — Tumbling Mills — Industrial Ovens.

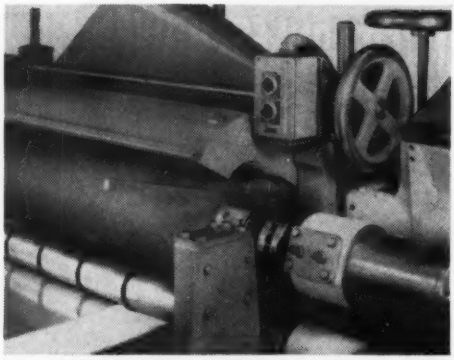
THE W. W. SLY MANUFACTURING CO.

SINCE 1874

4784 TRAIN AVENUE • CLEVELAND 1, OHIO

OFFICES IN PRINCIPAL CITIES

For more data circle 355 on Postpaid Card



Closeup of a spiral-wrap abrasive roll installed on a Clair No. 209 surface-finishing machine

each end. By using these clamps the spiral wrap is secured and pulled taut in a matter of seconds, without removing the roll from the machine. The wrap presents a smooth once-around spiral butt joint without overlap after installation is complete.

Each roll assembly includes a template for cutting abrasive paper to fit the roll. The pattern is such that abrasive paper is not wasted in cutting.

Manufacturer: Clair Manufacturing Co., Inc., Olean, N. Y.

For more data circle **6** on Reader Service Card

★ ★ ★

Red Pigment

Description: Orion Red CP-1300, a pigment recently introduced by the Pigment, Color & Chemical Division of The Sherwin-Williams Company has an exceptionally bright yellowish-red shade and is very opaque, the manufacturer states. CP-1300 has excellent heat resistance, good bleed resistance and fair resistance to light.

Technical Bulletin C-72 gives more information about Orion Red CP-1300.

Manufacturer: Pigment, Color &

ALL TITANIUM

ANODIZING CYLINDER

For bulk processing of screws, bolts, rivets, etc.

Made entirely of Pure Titanium to resist the effect of all acids used in processing.

(Shipped from stock)

Price—Lots of 3—$65.00 ea.

Single unit $67.50

DETROIT INDUSTRIAL PROCESS COMPANY

9301 French Road

Detroit 13, Mich. WAlnut 1-3800

For more data circle 356 on Postpaid Card

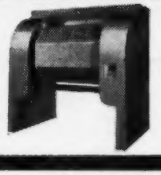
ABRADO

For creative **low cost** product finishing—let ABRADO'S completely equipped laboratory help you find the answer.

Send samples for Free Demonstration

ABRADO FINISH CORPORATION
PF-9 1750 Elizabeth Avenue, N.W.
Grand Rapids 4, Michigan

Barrel Finishing Equipment — Abrasive Media & Compounds. Write for Data Sheets and Price List.



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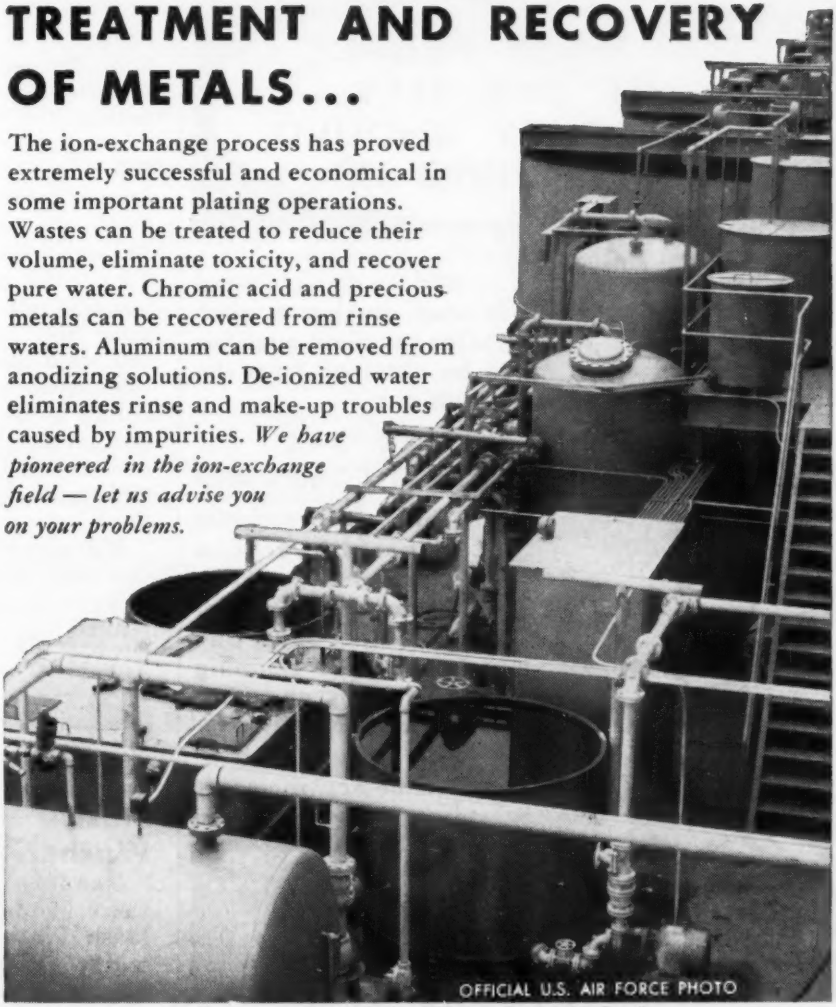
ILLINOIS WATER TREATMENT CO.
840 CEDAR ST., ROCKFORD, ILL.
CANADIAN DIST.: Pumps & Softeners, Ltd., London, Ont.
NEW YORK OFFICE: 141 E. 44th St., New York 17, N.Y.

ILLCO-WAY

ionXchange

FOR WASTE TREATMENT AND RECOVERY OF METALS...

The ion-exchange process has proved extremely successful and economical in some important plating operations. Wastes can be treated to reduce their volume, eliminate toxicity, and recover pure water. Chromic acid and precious metals can be recovered from rinse waters. Aluminum can be removed from anodizing solutions. De-ionized water eliminates rinse and make-up troubles caused by impurities. *We have pioneered in the ion-exchange field — let us advise you on your problems.*



OFFICIAL U.S. AIR FORCE PHOTO

For more data circle 358 on Postpaid Card

Chemical Division of The Sherwin-Williams Co., 260 Madison Ave., New York 16, N. Y.
For more data circle **7** on Reader Service Card

★ ★ ★

Portable Voltmeter

Description: Columbia Model UV-1 Voltmeter fits in the palm of the hand, will measure up to 600 volts.

How Used: Readings are taken by first inserting the safety plug into a receptacle on the instrument and then connecting the voltage leads to the line. One lead is equipped with an insulated clip, the other with an insulated prod.

Voltmeter

By the use of a simple rotary switch, the user can select one of four voltage ranges: 0-150 a.c., 0-150 d.c., 0-600 a.c. or 0-600 d.c. The 0-150 scale has five-volt divisions and the 0-600 scale has 20-volt divisions. Accuracy is two per cent on d.c., three per cent on a.c. (full scale deflection).

Manufacturer: Columbia Electric Mfg. Co., 4535 Hamilton Ave., Cleveland 14, Ohio.
For more data circle **8** on Reader Service Card

★ ★ ★

Mask Washer

Description: Deco Model 68 Mask Washer is said to rapidly clean masks

TOO MANY PEOPLE HIT THE HAY, WHEN THEY SHOULD BE PITCHING IT!
ALKALI IKE
... and we do not intend to stop making a pitch for the excellent qualities to be obtained from the use of our
APEX "742" CLEANING COMPOUND
This very versatile general purpose alkaline cleaner has been designed for both the soak and electrolytic cleaning of ferrous and non-ferrous metals.
Your Inquiry Will Be Appreciated
Apex ALKALI PRODUCTS CO.
A complete line of Cleaning Compounds for the Metal Finishing Industry
Main and Rector Streets • Philadelphia 27, Pa. • IV 3-3939
SYRACUSE BOSTON DETROIT ATLANTA PITTSBURGH WEST HARTFORD
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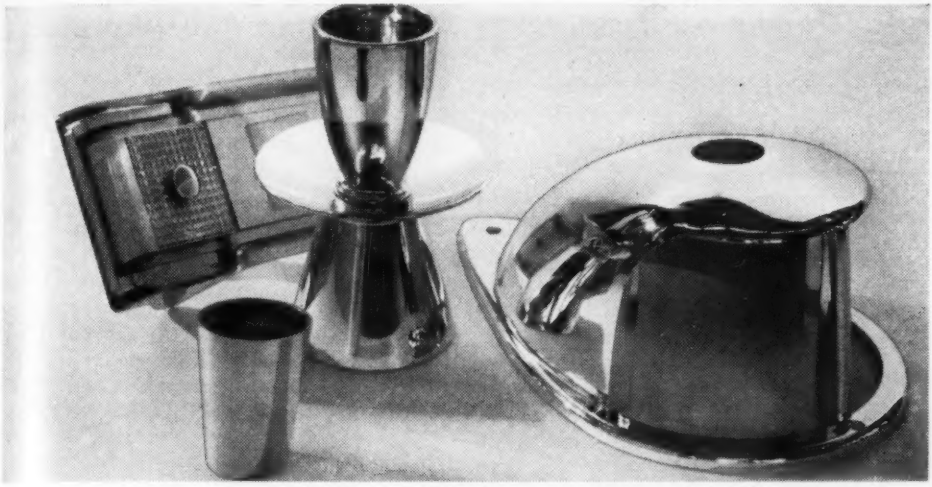

Why profits are bigger
when you plate with vacuum

1. Lower labor costs. Operating a CEC vacuum coater takes no special skills. Labor costs per piece are far lower than in traditional methods because the process is *fast*.

2. Eliminate buffing and polishing. A CEC vacuum coater lays down a surface that's bright without polishing. No further handwork is needed—just an easily applied protective lacquer.

3. Lower material costs. Ten cents worth of aluminum will vacuum-plate thousands of parts such as those shown here. Lacquers are relatively inexpensive, too.

Added durability

The *decorative* values of vacuum-plated finishes are well known. Now they can be remarkably durable, too. New coatings—recently developed epoxy lacquers, synthetic resins—can preserve those gleaming finishes indefinitely against abrasion, humidity, and other hazards.

To learn more about this new, and highly profitable process, write us for bulletins.

Consolidated Electrodynamics
Rochester Division, Rochester 3, N.Y.

SALES AND SERVICE OFFICES IN PRINCIPAL CITIES

For more data circle 360 on Postpaid Card

used in spray decorating. Has cleaned up to 25 coats of wet lacquer from a mask in 25 seconds, it is stated. Impingement pressure of over 20 pounds per square inch.

Requires 5½ square feet of floor space, 35 gallons of solvent, has cleaning area 34 inches long, 15 inches high, 12 inches wide.

Manufacturer: Deco Tools, Inc., 4321 Harris St., Toledo 12, Ohio.

For more data circle **9** on Reader Service Card

Anti-Friction Phosphate Coating

Description: A phosphate coating material developed for use as an anti-friction "break-in" coating and as a foundation for oil or paint has been announced by Turco Products, Inc. Called Turcoat 3557, it provides a phosphate coating of up to 3000 milligrams per square foot on iron, steel or cadmium.

Normally used as a "break-in" coating for moving parts, Turcoat 3557 also may be used for rust-proofing of small parts to be oiled in mass production. It serves as an excellent foundation for paint; thus, it is suitable for coating pistons, gears, crankshafts, ordnance parts, clips, bolts, nuts, fasteners, tools, compressor shafts and lubrication boxes.

The coating should be applied by immersion or tumbling. It meets MIL - C - 12968 (ORD), Type B; USA - 57 - 0 - 2C, Type II, Classes A, B and C; and JAN - C - 490, Grade 1. The coating applied is one of mingled manganese, zinc and iron phosphates.

Manufacturer: Turco Products,

H. W. Kramer
YOUR KEY TO BETTER FINISHING...
BUFFING LATHE
1 to 7½ H.P. Ball Bearing V-Belt Drive. Pre-determined speed set at factory or to your specifications. Buffing wheels and compounds available for every industry . . . Special compounds recommended for Special applications.
SINGLE BARREL TUMBLER
Size: 30" x 36" or engineered to your specifications. Barrels lined with kiln-dried and glued maple. Child's play to operate. Economical on space as motors are individually mounted overhead—double decked or single. Tumbling supplies available also.
Write Dept. GF for Detailed Information
H. W. KRAMER CO.
120-30 JAMAICA AVENUE
RICHMOND HILL 18, N. Y.

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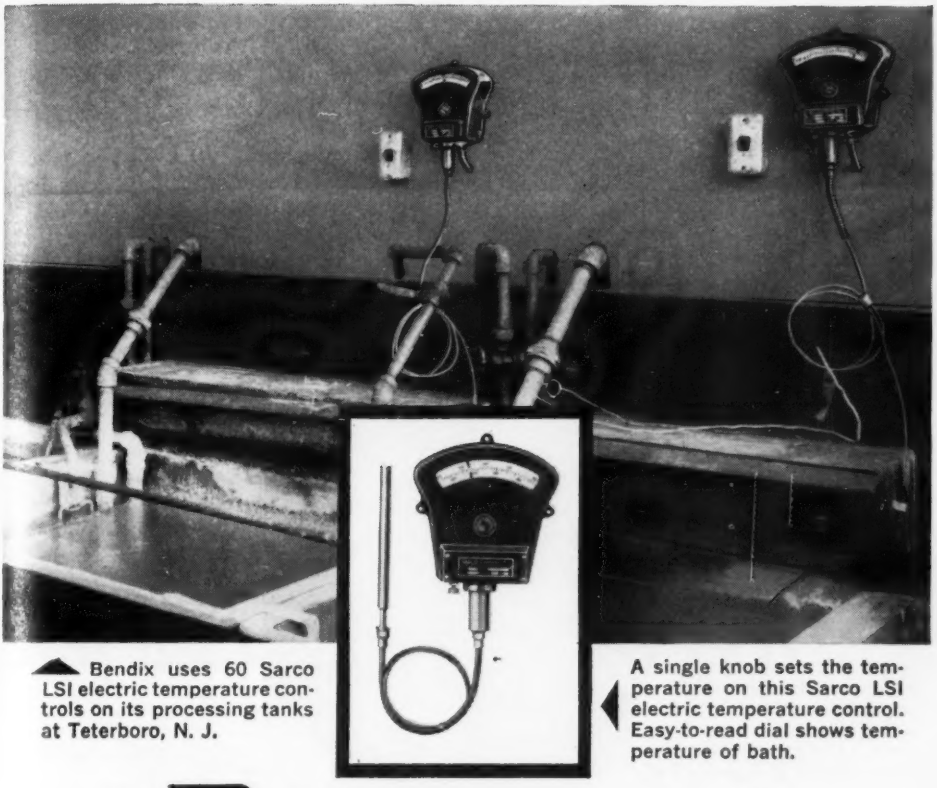


Bendix uses 60 Sarco LSI electric temperature controls on its processing tanks at Teterboro, N. J.

A single knob sets the temperature on this Sarco LSI electric temperature control. Easy-to-read dial shows temperature of bath.

How Bendix controls temperatures in 60 processing tanks with Sarco Electric Indicating Regulators

In the completely modernized plating department of Eclipse-Pioneer Division of Bendix Aviation Corporation at Teterboro, N. J., temperature in all processing tanks is controlled with Sarco LSI Regulators. This standardization has paid off in accuracy, dependability, and economy. Among the varied processes for which LSI's are now used are Black Dye, Dichromate Seal, Parker Lubrite, Hot Water Rinse, Electro Cleaner, Passivate, Black Oxide Copper and Chromium Plating.

You can get a complete Sarco system for as little as $130 a tank

This Sarco LSI makes it unnecessary to rely on erratic manual temperature control. Further, the low initial cost of the LSI and its almost negligible maintenance cost mean completely dependable temperature control with real economy. Call your nearest Sarco representative, or write for details on Sarco LSI temperature controls and your copy of Sarco Case History No. 174. 5927-A

SARCO
COMPANY, INC.

635 Madison Ave., New York 22, N. Y.

For more data circle 362 on Postpaid Card

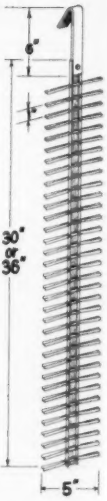
Inc., 6135 South Central Ave., Los Angeles 1, California.
For more data circle 10 on Reader Service Card

★ ★ ★

Anodizing Racks

Description: Titanium anodizing racks recently introduced by Detroit Industrial Process Co. are designated Type "S," can be used for racking a wide variety of parts.

These racks have 68 pairs of contacts per 36-inch spline. They are stocked with fingers of ⅛ inch, ¼ inch, and ⅜-inch widths. All are made of 32-gauge titanium and can be readily formed to fit most small parts. Two standard-length splines are available, both fitted with copper work hooks.



Type S Anodizing Rack

Manufacturer: Detroit Industrial Process Co., 9301 French Rd., Detroit 13, Mich.
For more data circle 11 on Reader Service Card

★ ★ ★

Buffing Composition

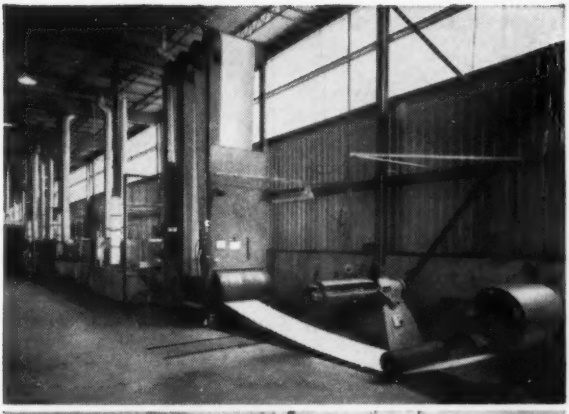
Description: A liquid cutting composition recently introduced by Frederic B. Stevens, Inc., is said to reduce finishing costs on certain steel and stainless steel parts.

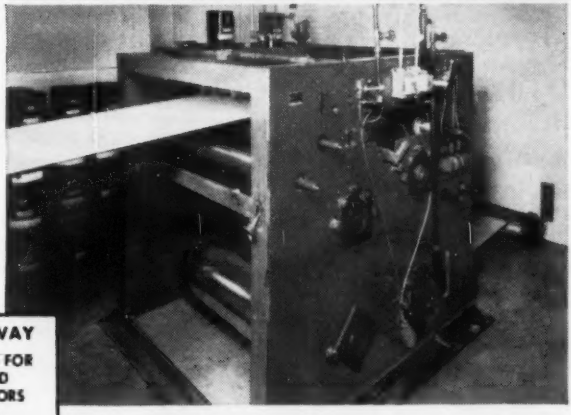
This saving is effected by the elimination of copper plate and copper buff operations prior to putting bright nickel and chrome on steel.

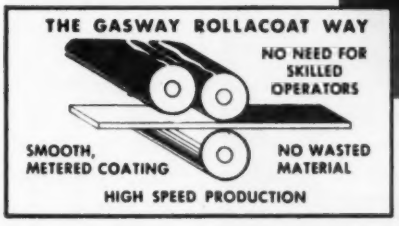
For more data circle 363 on Postpaid Card

Prefinishing of Metal Strip by GASWAY

ORIGINATORS AND LEADERS IN THE FIELD







TOP — Complete 36" strip coating line installed at Reynolds Aluminum Supply Co. The line is completely automated — raw coil stock to coated and baked finish.
BOTTOM — Coater in the line at Reynolds evenly meters finish, saving paint and giving smooth baked coating.

UP TO 5,000 FEET PER HOUR—Cleaned, primed, coated and baked.

COATS EITHER OR BOTH SIDES at the same time with the same or different colors, or materials. Applies lubricants, preservatives, electrical coatings as well as decorative finishes.

MORE UNIFORM FINISHES—Metered finish is rolled evenly on the work. Film thickness is controlled to within one-tenth of one mil, for economy and uniform baking.

SAVES UP TO 50% on paints, enamels or other coating materials.
Application of tough elastic coatings permits forming after finishing.

NO HANDLING, other than of coiled stock. Continuous-type Gasway Rollacoaters perform every function from cleaning and treating to coating both sides, baking and recoiling all in a single pass. Some of the users of this equipment to speed up production and reduce cost are: *Reynolds Aluminum Supply—Lithostrip—Rollcoater, Inc.—American Nickeloid—Allweather Steel—Comaco—Hi-Ten.*

INFORMATION AVAILABLE at no obligation to you. Regardless of large production rates or intermittent manufacturing, there's a Gasway Rollacoater to fit your needs. *Send for the whole story.*

GASWAY CORPORATION
6463 North Ravenswood Ave.
Chicago 16, Illinois

LOOK TO GASWAY FOR EFFICIENT, HIGH PRODUCTION COATING OF STRIP, SHEET OR PANELS

For more data circle 364 on Postpaid Card

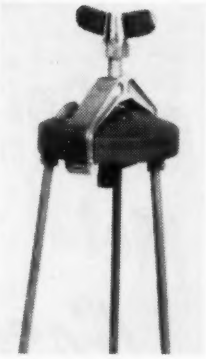
Known as Stevens 55-L, this liquid composition is said to have exceptionally fast cutting ability, resulting in good color and providing an excellent final plated surface appearance without further buffing.

Manufacturer: Frederic B. Stevens, Inc., Detroit 16, Mich.

For more data circle **12** on Reader Service Card

Submicron Filter

Description: A submicron filter (Model MF-25) is designed for use in laboratory work and wherever an exceptionally pure water supply is desired. The unit is for use primarily with distilled or demineralized water, where it removes particulate matter down to 0.45 micron. Rate of flow is 25 to 100 gallons per hour.



Submicron Filter

Manufacturer: The Barnstead Still & Sterilizer Co., Lanesville Terrace, Boston 31, Mass.

For more data circle **13** on Reader Service Card

★ ★ ★

Tumbling Creams

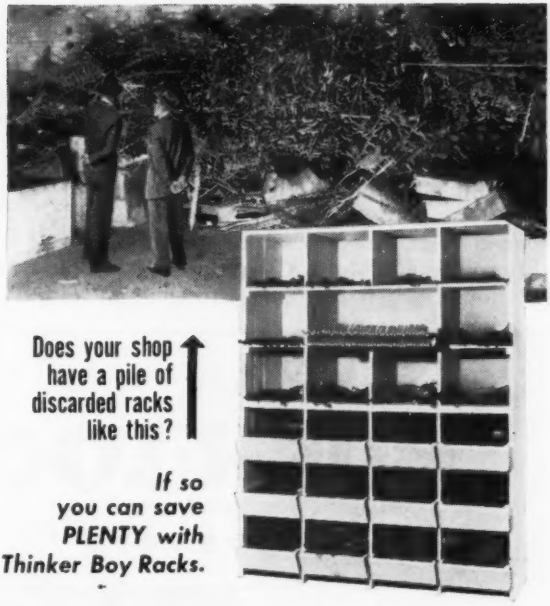
Description: Tumbling creams that can be used with wood pegs, sawdust and cobdust are said to aid in produc-

PROVED in over 10,800 installations
For innumerable applications
BENCH TYPE OVENS
BATCH OVENS
GRIEVE-HENDRY OVENS
Standard models with temperatures to 1200°F.
$110.50 and up
Write for literature.
CABINET OVENS
COMPARTMENT OVENS
If you are manufacturing a product that requires HEAT — for baking, preheating, drying, etc., it will pay you to consult with us. STANDARD OVENS in most models available from factory stock. In addition, we design and build Ovens to your particular requirements — Gas — Oil — Electric — any shape — any size — to any specification.
CONVEYOR OVENS
Sales engineers in all principal cities and many foreign countries.
GRIEVE-HENDRY CO., INC.

1414 W. Carroll Ave., Chicago 7, Ill.

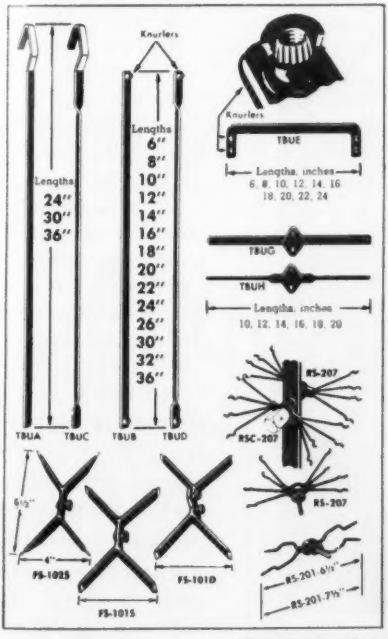
For more data circle 365 on Postpaid Card

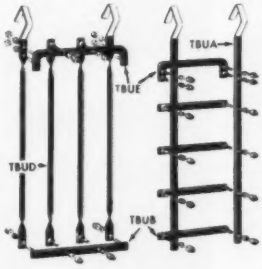
How to Convert Waste into PROFIT with Thinker Boy Plating Racks



Does your shop have a pile of discarded racks like this?

If so you can save PLENTY with Thinker Boy Racks.





Thinker Boy Plating Racks are made of mass-produced insulated parts that assemble with a leakproof seal.

When no longer needed you can disassemble the racks and reuse the parts or store the parts for future use in surprisingly small space.

With a supply of Thinker Boy Parts you can assemble fully insulated racks of your own design in minutes.

When you use Thinker Boy Racks you can quickly replace damaged tips with leakproof insulation seal—keep racks in service at full capacity—no dipping or waiting.

These great economies are possible because Thinker Boy Racks are made of standard, precoated parts assembled with screws. Disassembly or conversion to other styles is fast, easy and extremely practical.

A new illustrated bulletin, just off the press, shows how to make racks designed with Thinker Boy Sections. Send for your copy today — it's the key to revolutionary reduction in plating rack costs.

Ask your BELKE Service Engineer or send for illustrated bulletin.

Belke Manufacturing Company
947 N. Cicero Ave., Chicago 51
EVERYTHING FOR PLATING PLANTS

For more data circle 366 on Postpaid Card

ing a clearer, brighter and more scratch-free surface on barrel finished metal parts.

Two creams are made: Microlyte Finishing Cream and Hi-Glos Cream. Parts are first tumbled with media (wood pegs, sawdust or cobdust) and Microlyte Finishing Cream for 16 to 18 hours. Then they are tumbled for a minimum of ½ hour with a charge of wood pegs, sawdust or cobdust and Hi-Glos Cream to produce a bright finish.

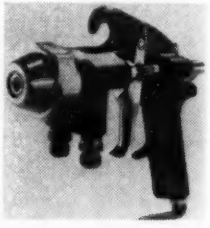
Manufacturer: H. W. Kramer Co., 120-30 Jamaica Ave., Richmond Hill 18, New York.

For more data circle **14** on Reader Service Card

★ ★ ★

Urethane Foam-Spray Gun

Description: A spray gun custom-



Foam-Spray Gun

made by the DeVilbiss Co. is designed for applying rigid urethane foam on vertical or overhead surfaces without sagging. Thicknesses from 3/16 inch to as much as two inches can be built up in continuous operation. Urethane foam has great strength with light weight and excellent thermal and acoustical properties. It is also highly adhesive and will stick to metal, wood, masonry, glass and fabrics. It will not mold or

BUSCHMAN

BUSH-LOCK

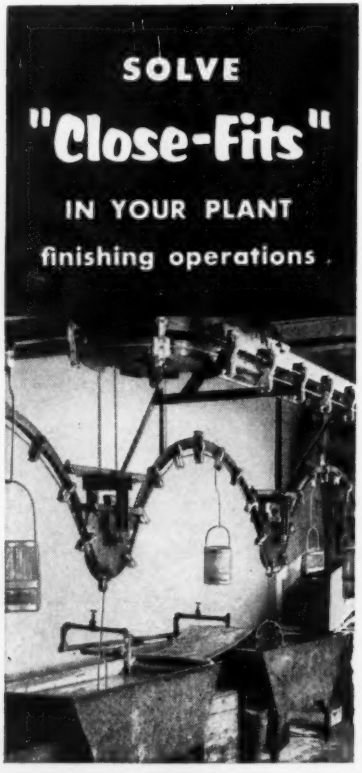
Cable Conveyors

Mechanized treating and finishing in just 27 ft. by 5 ft. of floor space —another space saving application of a versatile Bush-Lock Cable Conveyor, the low-cost package of standard stock components.

Sharp turns (from 7½" R)—plus the shortest possible dip in the industry for trolley type conveyors—eliminate space-waste and increase plant capacity in every type of industry.

Buschman specialists will cooperate with finishing equipment manufacturers making a survey of your plant requirements.

C-339-EWB



PRODUCE MORE FOR LESS
Buschman
CONVEYORS

THE E. W. BUSCHMAN CO.
4516 Clifton Ave.
Cincinnati 32, Ohio

For more data cicrle 367 on Postpaid Card

SEND US YOUR TOUGHEST PAINT STRIPPING PROBLEM

WITHIN 48 HOURS

Octagon's new "Industrial Technical Service" division will solve your problem and have a test sample of the fastest and most economical Octastrip stripper on the way for your production testing.

Cut your reject losses by reclaiming your imperfectly coated parts. Octagon guarantees to supply an Octastrip to remove even the toughest epoxy, vinyl or polyester finishes.

Without obligation, send a sample of work to be stripped to

INDUSTRIAL TECHNICAL SERVICE
division of

OCTAGON PROCESS INC

Makers of famous
Klearall 95 Cold Degreasing Solvent

15 Bank Street
Staten Island 1, N. Y.

For more data circle 368 on Postpaid Card

mildew and does not attract insects, moths or vermin.

This makes possible the application of the chemical foam as insulation over large areas or structural panels with greater ease and at comparable cost to present types of insulation, it is stated.

Urethane foam in flexible form is already in use in furniture and sports wear and as the material used in crash-padding of automobile instrument panels and sun visors. The ability to apply it for insulation opens a new field for the product.

Manufacturer: The DeVilbiss Co., Toledo 2, Ohio.

For more data circle **15** on Reader Service Card

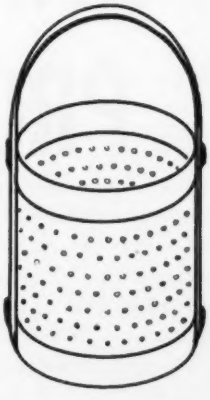
★ ★ ★

Plastic Dipping Basket

Description: A dipping basket made of heavy polyethylene with a polyethylene-enclosed steel handle is useful in dipping heavy loads of parts in acids and other corrosives. Data sheet available from the manufacturer gives complete details.

Manufacturer: Thor Chemical & Equipment Co., 77 S. Fifth St., Brooklyn 11, N. Y.

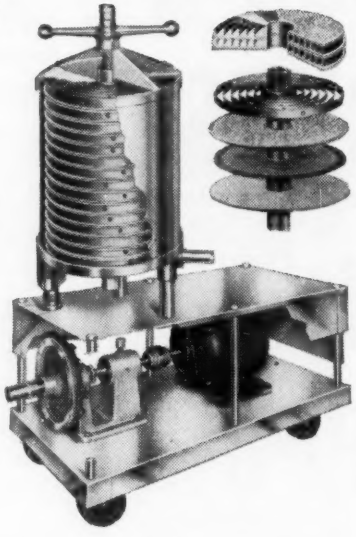
For more data circle **16** on Reader Service Card



Plastic Basket

ELIMINATE COSTLY PLATING REJECTS

due to pitting or rough deposits!



Sectional view of "Sealed-Disc" filter and pump unit. Portable or fixed installations are available in a wide range of capacities.

The Alsop Method of "SUB-MICRON" filtration assures you of totally clean plating solutions at all times with no interruption in your plating cycle! *All* impurities are automatically removed as fast as they are formed or introduced.

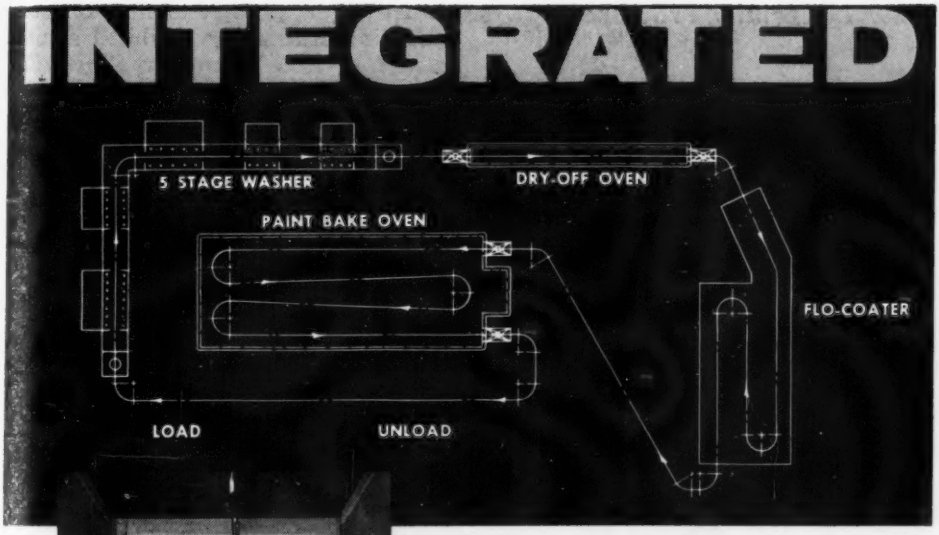
ALSOP

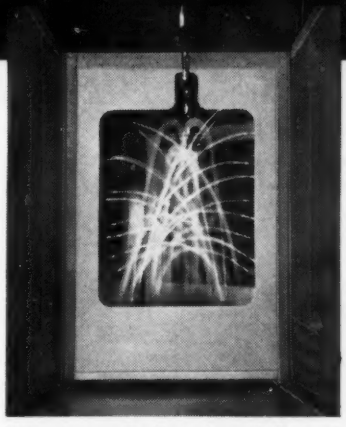
FREE! Your guide to better plating. "The Use of Filters in Electroplating" by J. B. Mohler

ENGINEERING CORPORATION
1311 Keen St., Milldale, Connecticut

For more data circle 369 on Postpaid Card

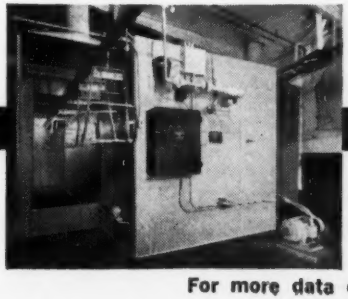
INTEGRATED





Unique lacquer Flo-Coater has wide flare and long flow path to suit the product—supermarket shopping carts and baskets. Compact MOCO installation gives substantial savings in coating materials over other systems.

Air-jet "curtains" at entrance and exit of MOCO baking oven act as a barrier against heat loss. The system is fully equipped with electronic flame failure safeguards.



Finishing Systems– *Cost Controlled* for Modern Production

Integrated Finishing Systems are more than just a plan and installation designed to meet the customer's needs in materials, space and output. At Michigan Oven, engineering a cost-controlled finishing system means equipping for today's demands, and for tomorrow's production.

The lacquer Flo-Coating system illustrated above is a complete and efficient system. Behind its installation lies a thorough study of the plant, of the product, of quality control and initial investment.

This finishing system will pay for itself in a relatively short time. It's engineered for economy, low maintenance and safety—and it will adapt readily to future expansion at low cost.

Send for a free MOCO bulletin showing typical finishing system applications, including products, process and specifications, or write for the name of the MOCO representative nearest you.

F-1

MICHIGAN OVEN COMPANY

MOCO

FINISHING EQUIPMENT DEPARTMENT
431 BRAINARD, DETROIT 1, MICHIGAN

Washing Machines • Bonderizing Units • Dry-off Ovens • Dip Tanks
• Spray Booths • Flo-coaters • Finishing Ovens • Conveyors

For more data circle 370 on Postpaid Card

Acid Cleaner for Metals

Description: A non-flammable acid-type cleaner and deruster that can be used on most metals is named Enthol 59. It is a blend of phosphoric acid, emulsifiers, solvents and penetrants.

Properties and Uses: Rapidly removes rust, oxides, oils and greases. Leaves light phosphate film on steel and zinc. Effectively inhibited against attack of iron or copper alloys. Removes smut and residual paint.

How to Use: Solution made up by diluting one volume of Enthol 59 with up to nine volumes of water. Applied by dipping, brushing or swabbing. Can be used hot or cold. Bath is more effective at elevated temperatures—up to 180 deg. F.

Literature on Enthol 59 available from the manuturer.

Manufacturer: Enthone, Inc., 442 Elm St., New Haven 11, Conn.

For more data circle 17 on Reader Service Card

★ ★ ★

Textured Vinyl Finish

Description: A textured vinyl organisol coating designated Unichrome Coating B-64 is said to have excellent resistance to abrasion and corrosives. The recently introduced finish is hard, yet retains good flexibility, the manuturer states.

Properties: Can be applied in various degrees of sheen in pebble texture or smooth finish. Baking temperatures comparatively low. Formulated for ap-

BARRETT *Centrifugal* DRYERS

For DIFFICULT DRYING JOBS and Heavy Loads up to 425 lbs.

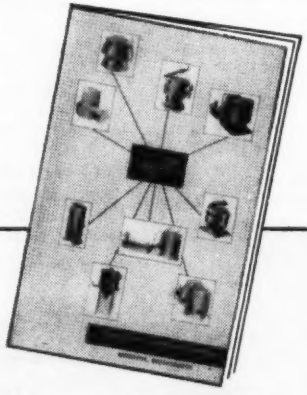
RAPID ACCELERATION of Barrett-built hi-torque motor snaps off surface moisture; built-in fan action dries parts quickly. For special applications, heater units are available.

REVERSING ACTION of motor will remove moisture even from cup-shaped or recessed parts.

RUGGED CONSTRUCTION provides for years of constant use with virtually no downtime or maintenance.

OTHER BARRETT CENTRIFUGALS

Washers • Oil Extractors
Enamelers • Galvanizers
Breakers • Impregnators



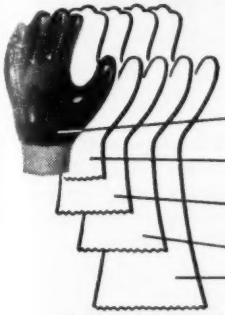
SEND FOR 16 PAGE TECHNICAL BROCHURE. Describes typical applications, special applications, design features, performance data, standard and special units.

THE LEON J. BARRETT COMPANY
1449 GRAFTON ROAD
WORCESTER, MASSACHUSETTS, U.S.A.
For more data circle 371 on Postpaid Card

These Flexible Coated PIONEER Gloves

Provide Long Wearing Liquidtight Protection For Materials Handling

Neoprene Coated Flannel Stanzoil Pacemakers



Length	Style	Weight	Model
10″	Knit wrist	Light	80
10″	Knit wrist	Industrial	90
10″	Knit wrist	Heavy Duty	95
10″	Gauntlet	Industrial	100
10″	Gauntlet	Heavy Duty	105
12″	Gauntlet	Industrial	120
12″	Gauntlet	Heavy Duty	125
14½″	Gauntlet	Industrial	140
14½″	Gauntlet	Heavy Duty	145
18″	Gauntlet	Industrial	180
12″	Gauntlet	Twin lined*	225

*No. 225 designed to protect hands from extreme hot and cold temperatures.

Pylox™ Coated Jersey Stanflex

Model	Style	Size	Length
5062	Knit wrist	Men's	10″
5052	Knit wrist	Women's	10″
5232	Band top	Men's	11″
5132	Gauntlet	Men's	12″
5252	Gauntlet	Men's	14½″

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The PIONEER Rubber Co.
285 Tiffin Road • Willard, Ohio

Please send me:

- ☐ 1958-59 Pioneer Industrial Glove Catalog
- ☐ 17″ x 22″ Full Line Glove Wall Chart
- ☐ Job Description Form For Free Hand Protection Analysis (Coated)

Firm_____

Address_____

City_____

Zone____ State_____

Requested by

_____

the PIONEER Rubber Company
285 Tiffin Road, Willard, Ohio

For more data circle 372 on Postpaid Card

plication by hand or electrostatic spray. Withstands perspiration, ink, beverages, commercial cleaning preparations, other acid and alkaline materials, dirt and stains.

Typical Applications: Business machines, electronic equipment, metal furniture, transportation equipment.

Manufacturer: Metal & Thermit Corp., Rahway, N. J.

For more data circle 18 on Reader Service Card

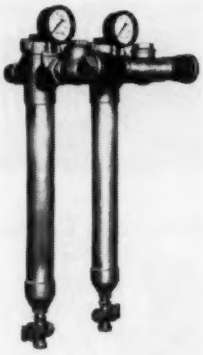
Strainer

Description: The 650 Series Strainer is a modified basket-type strainer that incorporates pressure gages which indicate inlet and outlet pressure so that the need for cleaning can be determined without disassembling the unit. As dirt collects in the strainer, the pressure difference becomes greater.

For removing dirt of a non-fibrous nature, a blow-cock is provided. To remove fibrous materials, the basket can be removed easily by relieving the pressure through the blow-off and then rotating the bayonnet - type cap.

The entire assembly is made non - short - circuiting by the use of "O" ring seals on both the top and bottom of the basket unit.

The unit is constructed of non ferrous materials, has rubber seals.



Broughton 650 Series Basket-Type Strainer: gages tell the operator when it's necessary to clean.

Better Buffing and Polishing?

ANSWER: ALWAYS USE

FORMAX COMPOUNDS

Formax manufactures a complete line of Buffing and Polishing Compounds in bar, tube and liquid form suitable for all classes of metal, plastic and lacquer finishes. Formax compounds used together with the famous Formax ZIPPO long wearing buffing wheels make a combination that's hard to beat. Our extensive manufacturing, laboratory and testing facilities are always at your disposal.

Descriptive Catalogs Available on Request.

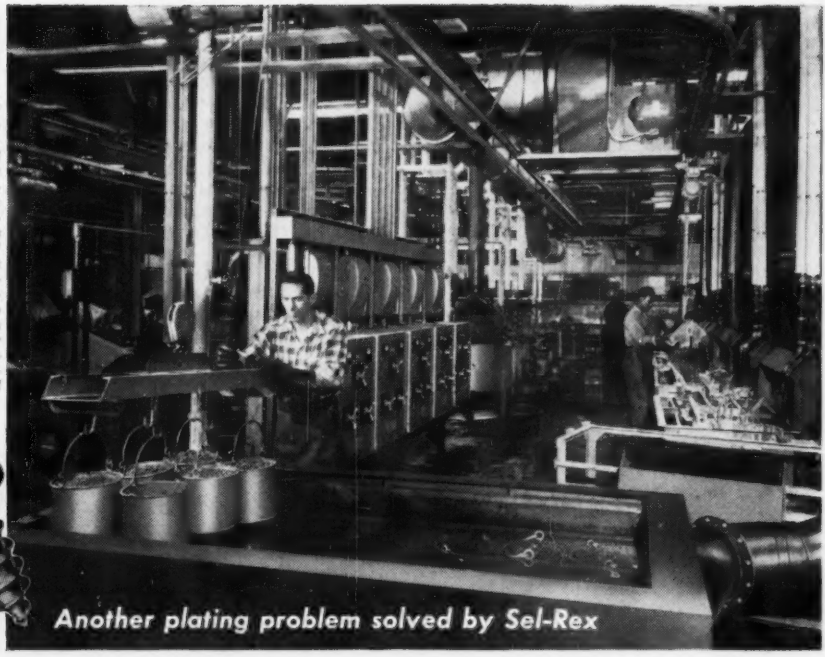
FORMAX MFG. CORP.

DETROIT 7, MICHIGAN

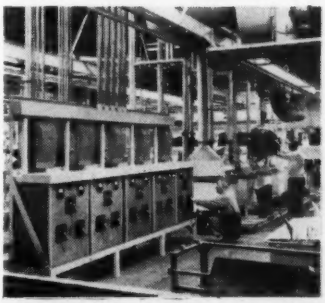
"THE FOUR McALEERS"

For more data circle 373 on Postpaid Card

View of mono-rail-automated Parker-Kalon plating facilities designed and laid-out with the assistance of Sel-Rex Engineers. Parker-Kalon has standardized with Sel-Rex plating equipment and supplies which help them to attain the quality for which P-K fasteners are famous the world over.



PARKER-KALON INCREASES PRODUCTION AND IMPROVES PLATING QUALITY WITH FIVE SEL-REX RECTIFIERS



Sel-Rex Remote Controllers shown above connect to three 16 Volt, 3000 ampere, and two 12 Volt, 2000 ampere Sel-Rex Selenium Rectifiers installed on the roof of Parker-Kalon's new 267,000 square-foot plant.

The world's leading manufacturer of self-tapping screws, Parker-Kalon division, General American Transportation Corp., Clifton, N. J., electroplates billions of screws a year in the extensive facilities pictured above. The dependable D.C. power for this tremendous operation is supplied by 5 SEL-REX Selenium Rectifiers, remotely controlled.

According to Mr. H. Rosenberg, works manager, these SEL-REX Rectifiers not only increased production appreciably, but also improved the quality of zinc, cadmium, nickel, copper and brass plating of their wide range of standard and special fasteners. SEL-REX also had the pleasure of working closely with Parker-Kalon engineers in layout and design of the special electroplating equipment required by this exacting application.

Whatever your plating problem — power, precious metals, equipment, plant layout or procedures — SEL-REX Representatives are trained to "Custom Engineer" solutions to our mutual profit. Send for FREE technical data and other case histories, and see for yourself ... we may have solved your problems last month.

Sel-Rex®

SEL-REX CORPORATION

NUTLEY 10, NEW JERSEY

Manufacturers of Exclusive Precious Metals Processes, Metallic Power Rectifiers, Airborne Power Equipment, Liquid Clarification Filters, Metal Finishing Equipment and Supplies

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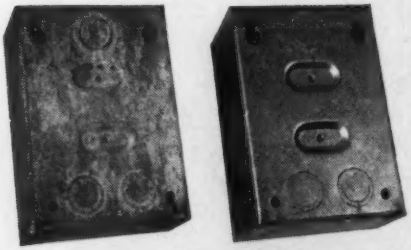
The BEST Finishes START with STANTITE Primers



Stantite Spraying Primer was used on switch box at right only. Both boxes were sprayed with aluminum synthetic and were exposed to salt spray test for 500 hours. The results speak for themselves.

Stantite Spraying Wash Primer is a two-package, new type rust inhibiting primer that improves the quality of *any* topcoat, air-dried or baked. The formula is concentrated to minimize the settling of zinc chromate. Fast drying . . .. exceptional adhesion to ferrous, non-ferrous metals and glass. Prevents "rust creep". Ideal base coat for lacquers, vinyls, alkyds, ureas, melamines, enamels, japans.

Cost saving, too—one-part Stantite, two-parts thinner reduction ratio. No need for phosphating or similar metal treatments. Prompt shipment from stock.

STANLEY CHEMICAL COMPANY
Subsidiary of The Stanley Works
DEPT K, 1338 BERLIN STREET, EAST BERLIN, CONN.

STANLEY

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS

For more data circle 375 on Postpaid Card

It is available in three sizes: 50, 100 and 150 g.p.m. capacity. Standard mesh baskets of 60 and 100 mesh are available.

Manufacturer: A. E. Broughton & Co., Glen Falls, N. Y.

For more data circle **19** on Reader Service Card

★ ★ ★

Improved Form of Sodium Metasilicate

Description: An improved particle form of sodium metasilicate pentahydrate is easier to compound and has better flow properties. The recently introduced material comes in bead-like granules rather than sharp crystals, is said to be exceptionally pure. Made by Cowles Chemical Co., this product can be sized within close limits: 90 per cent of popular-sized Crystamet 20-40 will pass through 20-mesh screen and be retained on a 40-mesh screen. Finer and coarser grades are also available.

All grades are said to be dustless, free-flowing, and all will compound readily with other granular chemicals such as soda ash, sodium phosphate,

Left: regular sodium metasilicate pentahydrate; right, Cowles Crystamet 20-40

wetting agents and so on, the manufacturer states.

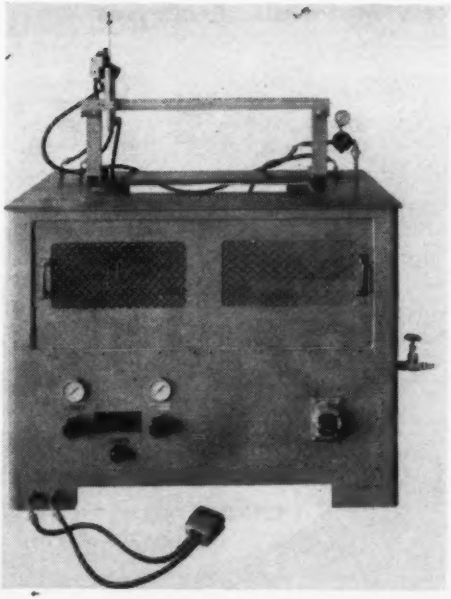
Manufacturer: Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.
For more data circle **20** on Reader Service Card

★ ★ ★

Automatic Spray Painting Machine

Description: An automatic spray painting machine will paint parts with areas up to eight inches wide and 22 inches long with a film that is said to have absolutely uniform thickness over the entire area.

Construction Features: Mechanical reciprocating drives moves guns so that there are no pauses even when the two traversing guns reverse direction; guns paint in both directions, automatically shut off at the end of each stroke; speed of gun travel: 35 to 90 f.p.m.; compressed air required only for triggering the guns. Dimensions:



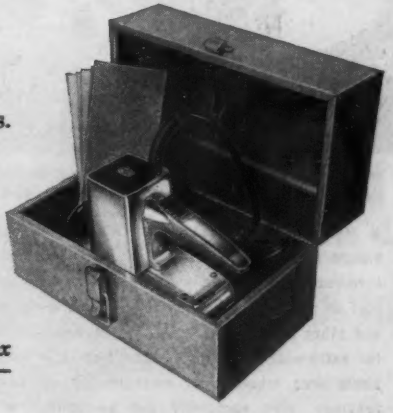
Conforming Matrix Spray Painting Machine

ENAMELS... LACQUERS

Low Cost... High Quality

More eye-appeal means more sales! Stanley enamels and lacquers will give you top-value product finishes at rock-bottom, per-square-foot application costs. Specially formulated for outstanding adhesion with mar resistance, Stanley enamels and lacquers are available in a wide range of colors. Finish varies from dull to high gloss. Easy application by hand, *electrostatic spray*, hot spray or dip. Coverage is about 650 square feet per gallon, at a one mil film thickness.

Stanley Low-Cost Finishes made this tool box more attractive . . . durable . . . sale-able — and can do the same for YOUR product!



STANLEY

STANLEY CHEMICAL COMPANY
Subsidiary of The Stanley Works
DEPT. K, 1338 BERLIN STREET, EAST BERLIN, CONN.

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS

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36 inches high, 47 inches long, 30½ inches deep.

Optional Features: Electric counter for pre-selection of the number of painting strokes; electric timer that controls duration of loading time and maintains steady operation; air-clamping hold-downs that hold flimsy or warped parts in the masks; tilting guns for jobs that require painting at various angles.

Descriptive literature available from the manufacturer.

Manufacturer: Conforming Matrix Corp., 356 Toledo Factories Bldg., Toledo 2, Ohio.

For more data circle **21** on Reader Service Card

★ ★ ★

Wood Graining Machines

Description: Several types of graining machines make it possible to produce the appearance of various woods on flat metal sheets and assembled cabinets.

One machine used for flat surfaces will grain a surface measuring up to 31 by 80 inches. The rollers of this machine roll over a plate upon which the grain pattern of the wood selected has been reproduced. They then roll over the metal surface to reproduce the design on the metal. This machine has a cycle time of 25 seconds.

Another machine has for the design reproduction an etched cylinder and a transfer roll that prints the grain on the metal being finished. This machine is equipped with a belt that carries flat pieces through

THE NEW VERSATILE NON-DESTRUCTIVE COATING-THICKNESS TESTER

DERMITRON

Unit Process Assemblies, Inc., pioneers in non-destructive testing and specialists in electronics for metal finishing, offer their latest DERMITRON D-2 with these features:

■ Measures plated coatings on steel, brass, copper, zinc die-cast, aluminum, bronze and other metals; also, nickel on steel. ■ Measures anodize and hard-coat on aluminum and magnesium; also, paint, porcelain, organic coatings on non-ferrous metals. ■ Measures metal coatings on plastics, ceramics and other non-metallic materials. ■ Available with FOUR measuring probes for extra-wide thickness ranges from thin to thick deposits. ■ Only 1/8" circle area required for measurement. ■ You get fast, accurate, direct readings, plus versatility and portability. ■ Sorts metals and alloys.

Write for latest brochure and questionnaire to help solve your thickness testing problems.

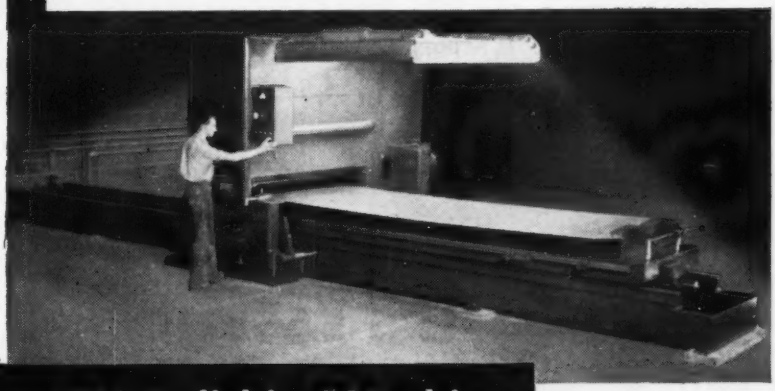
UPA

UNIT PROCESS ASSEMBLIES, INC.

61 East Fourth Street • New York 3, N. Y.

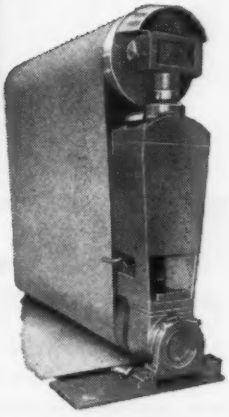
For more data circle 377 on Postpaid Card

HILL Sheet and Plate polishing machine with reciprocating hydraulic table and vertical two roll head.

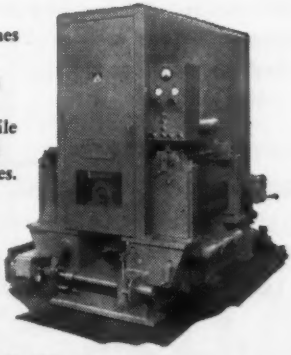


A HILL Polishing Machine of *YOUR OWN* will afford you important savings...

- *By eliminating mill extras.*
- *By proper finishing and prepolishing before forming.*
- *By enabling you to prepare the correct surface finish to meet each individual job need.*



● HILL polishing machines are now saving important percentages for manufacturers supplying the dairy and sanitation fields, for automobile bumpers, engravers plates and a wide variety of other industries.



HILL Pinch Roll type with vertical two roll head for polishing strip. Can be used singly or in multiple units for line production.

IT'S MOSTLY IN THE HEAD

Two rolls accurately controlled for speeds and pressures with easy adjustment for proper tension of the endless abrasive belt. For fine finishing of all types of ferrous and non-ferrous metals.

The HILL ACME Company

1207 W. 65th STREET • CLEVELAND 2, OHIO

"HILL" GRINDING & POLISHING MACHINES • HYDRAULIC SURFACE GRINDERS • ALSO MANUFACTURERS OF "ACME" FORGING THREADING • TAPPING MACHINES • "CANTON" ALLIGATOR SHEARS • BILLET SHEARS • "CLEVELAND" KNIVES • SHEAR BLADES

For more data circle 378 on Postpaid Card

at the rate of 50 f.p.m. It is possible to grain cabinets after they have been assembled by raising the rolls on this machine to a vertical position.

Manufacturer: American Richwood Products Co., 100 E. Mason St., Milwaukee 2, Wisconsin.

For more data circle **22** on Reader Service Card

Colored Chromates

Description: A process for treating zinc and zinc plated parts with chromate solutions converts the surfaces of the parts into a zinc chromate coating that can be dyed in various attractive colors. The process is useful in producing metallic finishes on toys, appliances, tools, automotive parts, wire goods, nuts, bolts and screws.

Process: The colored chromate coatings are applied in a six-stage process: zinc plate, rinse, chromate coat, rinse, dye, final rinse. Further sealing treatments or subsequent finishes may be applied, depending upon the use of the part being finished.

Manufacturer: Promat Div., Poor & Co., 851 S. Market St., Waukegan, Ill.

For more data circle **23** on Reader Service Card

★ ★ ★

Vacuum Pump

Description: An air-cooled fractionating oil diffusion pump with an internal casing diameter of two inches needs only electrical connections for operation, can be used when water service is inconvenient or does not exist, and readily lends itself to trans-

IT'S EASY TO
STRIP
OFF PAINT
and Solve Your Stripping Problems with—
EPOXYSTRIP
PAINT STRIPPER—Saves Time and Money!
A new more powerful paint stripper that outstrips all others! No organic finishes have yet resisted this amazing paint stripper. It was especially formulated to remove epoxies . . . with the same ease that it removes baked enamels, lacquers, etc. No stripping scum—clean rinsing!
SEND FOR FREE BROCHURE

• EPOXYSTRIP WILL NOT HARM SOFT METALS
• ECONOMICAL—MORE JOBS PER GALLON AT LOWER COST
• NO SCRUBBING OR MANUAL ASSISTANCE
• RECOMMENDED BY LEADING FINISH MANUFACTURERS
JOBBERS: Beck EPOXYSTRIP sells on demonstration. Try it and see for yourself.
BECK EQUIPMENT COMPANY
3350 WEST 137th STREET — CLEVELAND 11, OHIO
For more data circle 379 on Postpaid Card

Here's the *only* carbon developed exclusively for removing impurities from plating solutions . . . Red Label DARCO. It has high purifying power . . . wets quickly . . . cuts dust problems. Its high density reduces time and labor for dumping filters by up to 50%.

You'll cut down on plating rejects, and the loss of costly anode metals such as nickel and copper, by using DARCO activated carbon. It's the standard of the industry—chosen by custom electroplaters and plating departments everywhere.

Give your nearby DARCO distributor a call . . . he'll be glad to show you how to use Red Label DARCO most effectively and to supply you promptly.

DARCO IS MADE BY ATLAS CHEMICALS DIVISION
ATLAS POWDER COMPANY
WILMINGTON 99, DELAWARE

In Canada: Atlas Powder Company, Canada, Ltd.
Brantford, Ontario, Canada

For more data circle 380 on Postpaid Card

portable pumping units.

A redesigned baffle is said to reduce vapor backstreaming. With the baffle in place the pump has a minimum speed of 40 liters/sec in the 2 x 10^{-5} to 7 x 10^{-3} mm Hg range, with a peak speed of 48 liters/sec at 5 x 10^{-4} mm Hg. The pump will attain an ultimate pressure of 2 x 10^{-6} mm Hg.

The pump has a metal shroud which encases the cooling fins on the pump barrel. The upper section of the shroud, containing a connection for an air blower, is movable to allow air to be introduced against the cooling fins from any horizontal angle. Forced cooling air, not to exceed 90 deg. F. with a flow rate as delivered from a 100-c.f.m. blower, is required for optimum operation.

Manufacturer: Rochester Division, Consolidated Electrodynamics Corp., 1775 Mt. Read Blvd., Rochester, N. Y.

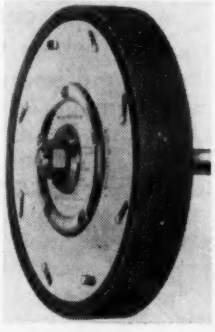
For more data circle **24** on Reader Service Card

★ ★ ★

Polishing Wheel

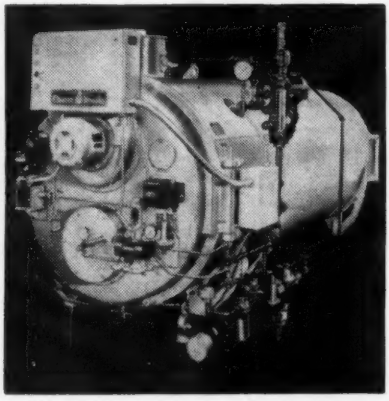
Description: An expanding wheel for circular abrasive belts is self balancing and always maintains a flat edge in operation, the manufacturer states. It is useful in polishing, deburring and rough grinding.

The rubber wheel is retained between side



Polishing Wheel

PROTECTS this BOILER better than any other finish!



Sicon® SILICONE

HEAT RESISTANT FINISH

● SICON gray and SICON Maroon are used on all models of the "CB" line of packaged boilers, manufactured by Cleaver-Brooks, Milwaukee. SICON retains its color and gloss in the range of 500° F., far above the hottest skin temperatures of the boiler.

SICON is easy to apply—one sprayed on coat does the job. It dries fast, and protects the surface for the life of the unit. If your product generates sustained heat you need SICON, *the finish that has stood the test of heat and time.* Write today!

MIDLAND *Industrial Finishes Co.*

K-18, WAUKEGAN, ILLINOIS

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LACQUERS
SYNTHETICS
VARNISHES

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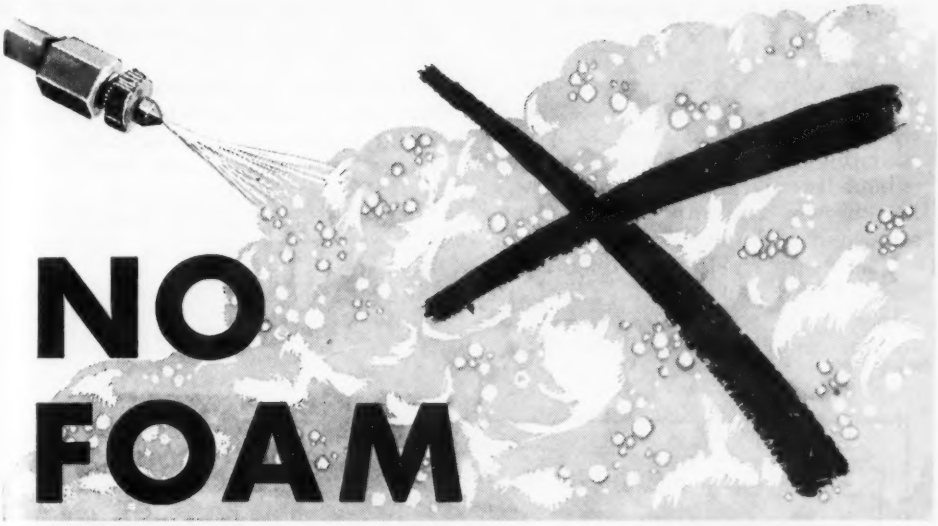

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Magnus Chemical Company now offers a new line of spray washing compounds which are *non-foaming at any solution strength.*

MAGNUS "X-3" COMPOUNDS

MAGNUS 91X-3—specifically for aluminum or light-duty cleaning.

MAGNUS 92X-3—for brass, bronze, copper, steel and chemically resistant alloys.

MAGNUS 94X-3—for heavy-duty cleaning of steel.

MAGNUS "X-3" COMPOUNDS OFFER:

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FREE RINSING **NO HAZARD TO EQUIPMENT OR PERSONNEL**

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flanges (but not bonded to them) by eight pins equally spaced in a circle near the rim of the wheel. These pins extend through diagonal slots that allow the wheel to adjust itself in operation and maintain dynamic balance.

The floating action obtained by this method of wheel mounting keeps the edges of the wheel flat, prevents distortion caused by centrifugal force.

In addition, the pins make the wheel explosion-proof and prevent slippage, even under heavy load.

The wheel accommodates an abrasive belt 1¼ inches wide and 21 inches in circumference, plus or minus 1/32 inch. Two versions are available for operation at different speeds.

Manufacturer: Miller Products Co., 1438 12th St., Box 325, North Chicago, Ill.

For more data circle **25** on Reader Service Card

★ ★ ★

which of these POLISHING PROBLEMS are yours?

- ☐ Reduction of belt sanding stages
- ☐ Cutting down buffing time
- ☐ Reduction of hand polishing
- ☐ Blending directional grind lines
- ☐ Lowering micro-inch finishes
- ☐ Exposing cracks and fractures
- ☐ Smoothing belt marks
- ☐ Imparting non-directional finishes
- ☐ Semi-reflective surfacing
- ☐ Blending brush marks
- ☐ Surface uniformity
- ☐ Removal of stress marks
- ☐ Obliterating
  - ☐ Scores ☐ Tool marks
  - ☐ Reliefs ☐ Chatter
  - ☐ Pits ☐ Scratches
- ☐ Matte finishing
- ☐ Thread fit and turnability

DO IT MANUALLY OR AUTOMATICALLY WITH PRESSURE BLAST WET BLASTING

TWO SPEED

This ad is your coupon. Check off your problem (s) and mail today for free illustrated literature . . . Application data . . . case history information!

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Roller Coating Thickness Indicator

Description: Vertical thickness adjustment dial indicator that is available as an optional extra on all Black Brothers roll-type machines (glue spreaders, roller coaters and rotary presses) can be added to existing equipment as well as specified

Thickness Indicator

SUPERIOR SERVICE IN APPLICATION ...IN USE

... One of the advantages available with Unichrome Coating 218X

Applicators of Unichrome Coating 218X, located in every major area, all have what it takes to assure you fast service, expert job, longer lasting rack protection.

They're equipped for it ... through long metal-coating experience ... and with the right facilities. They get coatings to stick tight by using Unichrome Primer 219-PX. They build up the top coat with skill, using the coating with a 10-year proof of satisfactory service. They cure it perfectly, for maximum toughness and service life in all plating and cleaning cycles.

These specialists know that vinyl plastisol Coating 218X will never let them or their customers down. They know that using the best quality at the outset saves platers most money in the long run. Send for name of the one nearest you.

Are you using the rack coating that gives you ALL FIVE?

1. *Built-in cure indicator assures maximum performance*
2. *No contamination of plating baths*
3. *Ability to be rebaked for patching*
4. *Nationwide set-up of expert applicators*
5. *Highly qualified technical service.*

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First name in plastisols for all plating purposes

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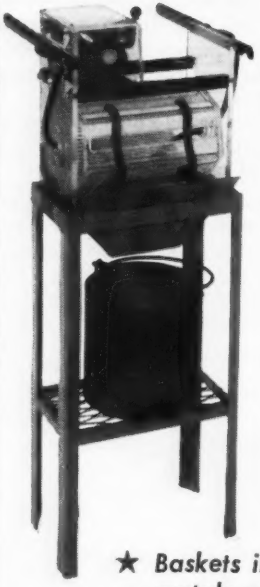
STUTZ



PORTABLE
PLATING
BARRELS

★ *Baskets in perforated metals or wire mesh.*

★ *Load/Unload Stand for convenient and fast handling of work load.*

The Stutz Portable Barrel is made in 3 standard sizes with cylinders having inside dimensions of 6" x 12", 8" x 18" and 10" x 18" I.D. Smaller upon application. Standard openings are 3/32". Smaller or larger openings can be furnished as required.

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on any of the company's new machines.

By indicating the opening between the coating rolls in thousandths of an inch, it enables the operator to quickly adjust the machine to different stock thicknesses from prior settings. This conserves time and also saves stock, as "hit or miss" thickness adjustments are eliminated.

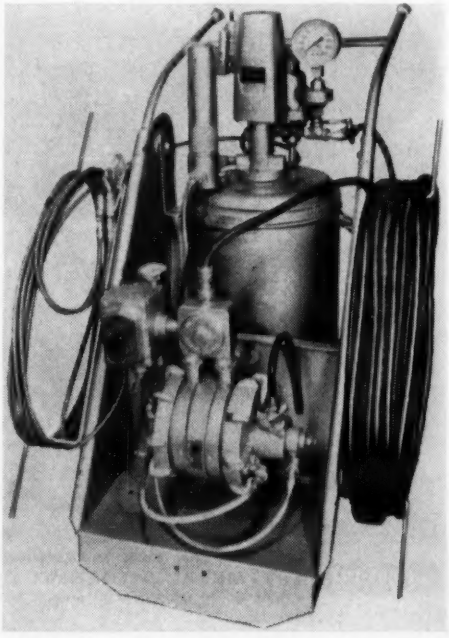
Manufacturer: Black Brothers Co., Inc., Mendota, Ill.

For more data circle **26** on Reader Service Card

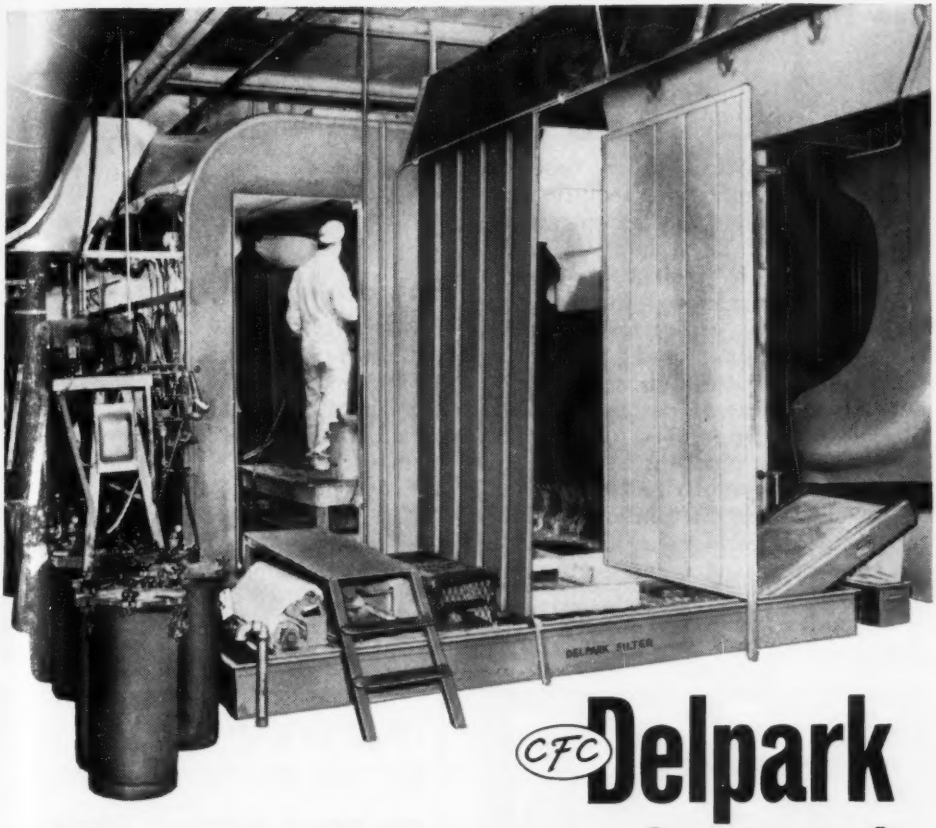
★ ★ ★

Portable Airless Spray System

Description: The Chieftain Hydra-Airless, a portable airless spray unit made by Spee-Flo Co. allows spray painting is open areas without the use of a spray booth, the manufacturer states. This is possible, the company reports, because overspray is almost



Spee-Flo Portable Airless Spray System



CFC **Delpark**

Filters Keep Overspray under Control

Here's how you reduce downtime, save labor and valuable pigments . . . by removing overspray from wash water automatically with CFC Delpark Filters.

You prevent plugged jets and nozzles; eliminate excess wear on pumps; avoid frequent tank draining and cleaning; easily reclaim valuable pigments.

CFC Delpark Filters are continuous and self cleaning. They operate on the gravity principle, discharging paint in a relatively dry state to an outside container.

For the assistance of Commercial Filters engineers or for technical literature, write to Department PF.

COMMERCIAL FILTERS CORPORATION
MELROSE 76, MASSACHUSETTS
PLANTS IN MELROSE, MASSACHUSETTS AND LEBANON, INDIANA

MICRO-CLARITY AT MINIMUM COST

Fulflo FILTERS — *with genuine Honeycomb Filter Tubes for controlled micro-clarity of industrial fluids.*

CFC FILTERS — *Selective filtration of oils • water-oil separators • magnetic separators • pre-coat filters • coolant clarifiers • automatic tubular conveyors.*

For more data circle 386 on Postpaid Card

completely eliminated by this method of atomization.

The Hydra-Airless system, based on mechanical atomization, requires that viscosity-controlled heated paints be forced through a specially designed orifice at high pressure. Desired atomization is achieved through control of viscosity, orifice and pressure. No atomizing air is used.

Completely self contained, the Chieftain Hydra-Airless combines the explosion-proof Spee-Flo heater and divorced-action pump in a mobile unit which carries the original five- or ten-gallon container. Circulation is maintained for temperature control and the operator can select paint temperature by turning a controller.

The unit is capable of operating one gun on hose line up to 75 feet in length or two guns simultaneously on hose lines up to 50 feet long.

Literature illustrating and explaining the system is available from the manufacturer.

Manufacturer: Spee-Flo Co., 6614 Harrisburg Blvd., Houston 11, Tex.

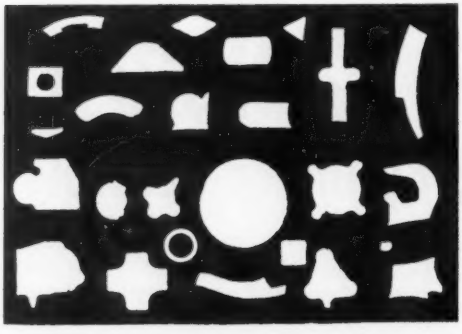
For more data circle **27** on Reader Service Card

★ ★ ★

Spindle-Type Abrasive Finishing Machine

Description: The Abrado-Matic TS-31 is a machine that finishes fixtured parts by attaching them to the spindle on an air-operated fixture which immerses them into a rotating tank of abrasive media.

The recently introduced machine is said to produce rapid results in performing such operations as deburring, radius forming, blending of machining or grinding marks and improvement of micro inch finish. Abrado-Matic



Pre-Cut Masks Speed Finishing

Brady Pre-Cut Masks are self-sticking — go on fast and accurately. Protect from finishing to inspection. Hundreds of shapes and sizes in stock, for paint spraying, baking, tumbling, etc. Specials made to order. Fast delivery. Distributors in 150 cities.

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DO YOU ALLOW RAPID WEAR ON YOUR BUFFING FIXTURES

when they can be *FUSECOATED* to last up to a year or more? We specialize in protective coatings for fixtures of all kinds and would like to add your name to our long list of regular customers.

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for our general information folder or send sample fixture or drawing of same to be FUSECOATED.

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See—through a test in your plant—how temperature is controlled accurately at any level you wish by dri-Quik. See how you get an even field of heating energy. No bulbs or sockets to burn out.

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FIELD TEST EQUIPMENT

right into your plant

Don't buy blindly from a catalog. Our laboratories are equipped to make any tests that you wish, but we believe it important to have one of our highly trained representatives bring test equipment into your plant so that you can see exactly what it will do with your products and your personnel. No charge or obligation for this service which *only* driQuik provides.

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DRY CLIME LAMP CORP.
GREENSBURG, INDIANA

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HERE'S WHY — For almost twenty years PROMAT has been supplying the metal finishing industry with the finest in chemical products and processes relating to the finishing treatment of metals. • PROMAT manufactures an unexcelled line of ZINC BRIGHTENERS, CADMIUM BRIGHTENERS, ELECTROPOLISHES, ANTI-FOAM AGENTS, DOCTOR'S SOLUTION, CLEANERS, RUSTPROOFERS, and CHROMATES.

TECHNICAL ASSISTANCE — is yours for the asking from PROMAT'S service department where highly skilled technicians stand ready to serve you in the solution of any metal finishing problem you may have.

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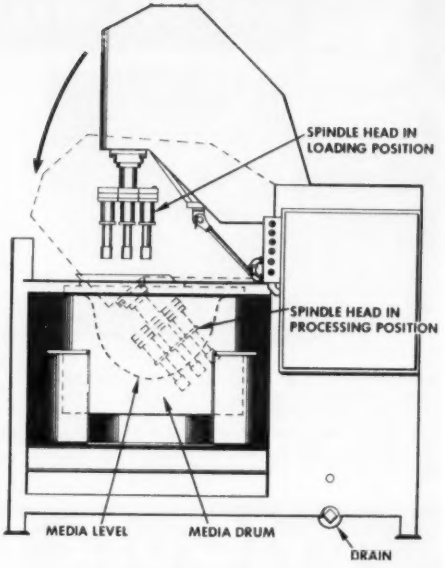
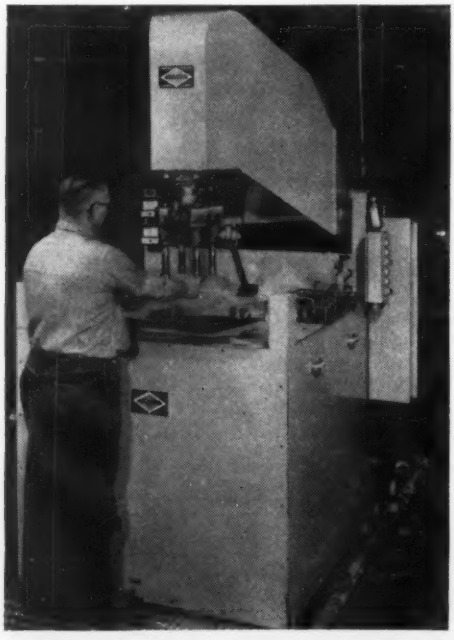
will maintain close tolerances, it is stated.

Operation: Unfinished parts are attached to the fixture, which is attached to the machine's spindle. The operator presses the start button, which activates an air cylinder that is attached to the fixture-housing spindle. This lowers the part into the rotating abrasive mass. The spindle also rotates at a speed that can be varied to suit the operation being performed so that all sides of the parts are finished evenly. After a predetermined time, the spindle automatically raises the part from the media. The part is sprayed with a cleaning solution as it emerges, to remove loose particles.

The cycle is short—15 seconds to five minutes is usually sufficient time to do the job, the manufacturer states, although longer times are sometimes used in difficult operations. Pushing a foot pedal releases the part and makes room for the next part.



Drawing shows important parts of Abrado-Matic TS-31 spindle-type finishing machine



Spindles on this Abrado finishng machine are in the loading position

The spindles are designed to hold one or more parts, can be changed easily to accommodate different parts.

Manufacturer: Abrado Finish Corp., Dept. PF-9, 1750 Elizabeth Ave., N.W., Grand Rapids, Mich.

For more data circle **28** on Reader Service Card

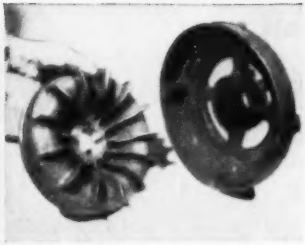
★ ★ ★

Steam Cleaning Machine

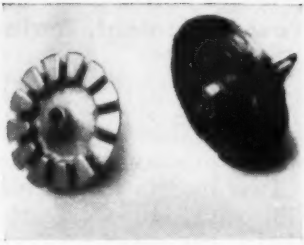
Description: A steam cleaning machine recently introduced by Circo Equipment Co. has automatic controls that regulate production of steam, mixing of cleaning compound, solution feed, and so on.

Design Features: Engineered for one-man operation; fully protected controls regulate hot water proportions to ensure proper dissolving of the compound; valves control steam entry through heating coils, guarding against

CORVEL Cellulosic Finishes—wide variety of colors with high surface gloss; excellent retention of both color and gloss in water, salt spray, sunlight.

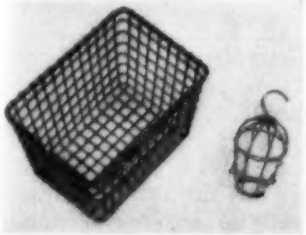


CORVEL Vinyl Finishes—durable with extreme toughness; resistant to corrosion and most chemicals. Available in a range of colors.

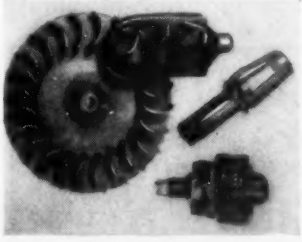


CORVEL Epoxy Finishes—excellent insulation at elevated temperatures; moisture, chemical and impact resistant. Provide a hard, smooth surface.

CORVEL Nylon Finishes—to impart the outstanding wear and low frictional qualities of nylon in coating metals and other base materials.



CORVEL Polyethylene Finishes—provide zero water absorption, excellent chemical resistance and electrical insulation.



CORVEL K-51 Penton Finishes—exceptional chemical and wear resistance. K-51 Penton finishes can withstand temperatures from −40° F. to 250° F.*

*Trademark of Hercules Powder Co.

CORVEL† Fusion Bond Finishes—

Six new engineered resins for product finishing

CORVEL finishes are specially processed dry powders, formulated for use in the patented** fluidized bed coating process. These finishes give you the following outstanding advantages:

- Comparatively heavy finishes (from approximately 0.005" to 0.062") obtained by a single dipping treatment—*without* the use of solvents.
- Finishes unmarred by sags, drips or bridging.
- Uniformity in thickness, with excellent coverage of sharp edges, corners and projections.

Thus, CORVEL finishes can give your products improved durability and appearance at minimum cost, and provide new design possibilities.

Process licensing is now readily available. A process license is automatically extended to the purchaser of CORVEL powders from National Polymer Products, Inc. upon payment of a small royalty added to each sales invoice. General licenses to use the patented process are available from Polymer Processes, Inc., an affiliate company.

Information relating the advantages of CORVEL Fusion Bond Finishes to your particular products, and details on the fluidized bed process and equipment are available from National Polymer Products, Inc. Write today for a copy of the new CORVEL Bulletin.

NATIONAL POLYMER PRODUCTS, INC.

A subsidiary of The Polymer Corporation

Reading, Pennsylvania

POLYPENCO

†*Polymer Corporation trademark for finishing materials*

**U. S. Patent 2,844,489 and over 30 patents pending

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clogging or obstruction; compound does not pass the coils; down-draft burner produces long flame.

Two models are available: Model 275, with 110 volts, 1½ h.p.; and Model 360, rated at 220 volts, 3 h.p. Soap capacity of both units is 15 gallons of concentrated solution.

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use for over 6 years in light and heavy production.

- Ready To Use—Just Add Water
- No Variance in Color
- Trouble-Free—Little Supervision Needed
- Low Cost—Additions only once a day

Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.
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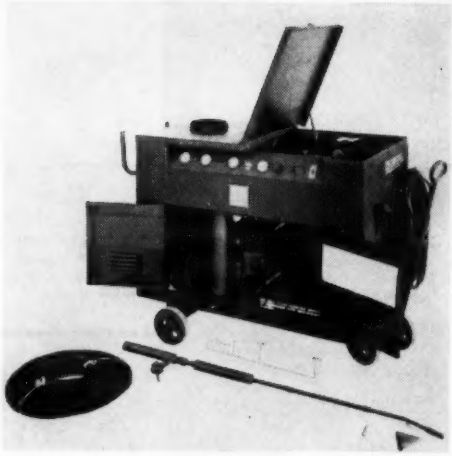

Steam Cleaning Machine: fully automatic

Applications: Automotive, aircraft, railroad, general industrial maintenance operations.

Manufacturer: Circo Equipment Co., 122 Central Ave., Clark, N. J.

For more data circle **29** on Reader Service Card

★ ★ ★

Plastisol Coating

A plastisol coating that can be sprayed, painted or dip-applied to produce coatings of 40 mils or more is useful for plating-rack development, patching or general protective maintenance. The material adheres to metal and to other protective coatings, producing a tough, non-contaminating insulating surface. Requiring no ovens, special skill or facilities to apply,

YOUNG BROTHERS *Baking and Drying* **OVENS**

designed and built for every product and process requirement

Batch and Conveyor types up to 1000° F.

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Concentrates for

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Plus Custom Concentrates for other metals

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Size Control
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Electroplate Adhesion

Electro-Glo

Electro-Glo produces finishes from satin to mirror-bright. We'll be glad to process your sample. Electro-glo offers nation-wide service and delivery in carboys, drums and tank trucks.

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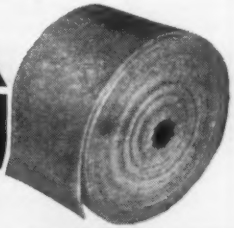
Bond® TACK CLOTH

PACKED IN ROLLS OR IN BULK
JUST THE WAY YOU WANT IT!



Stays Soft and Tacky — A SPECK-FREE FINISH EVERY TIME — Now available in white or gold — in Four Different Types of Cloth.

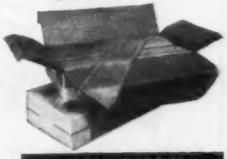
There's a big difference in TACK-CLOTHS—that's why BOND processes four different meshes of cloth with several types of formulations to give you the cloth that best "fits" your special needs. You can get BOND TACK CLOTH packed just the way that suits you best, too—in 150 yard Rolls of 36" wide cloth or in handy Cartons.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up.

All BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free and Wax-Free. Gives a sparkling speck-free finish every time. Clean and Sanitary. No waste. Choice of Standard, Extra Tacky or Less Tacky.

IN ROLLS

Cut off any size piece as needed.



IN BULK

Size is 18" x 36"—folded to 4½" x 18" or 9" x 18" for ease of handling. Cut and folded—ready to use. Also Individually Packed in Glassine Envelopes —144 to the carton—

TRY THEM AND COMPARE RESULTS. Samples gladly sent upon request.
A WARRANTY OF SATISFACTION IN EVERY CARTON.

Bond® CHEMICAL PRODUCTS CO. 2639 N. CLYBOURN AVE. CHICAGO 14 • ILLINOIS

"The Tacky Wiper Specialist"

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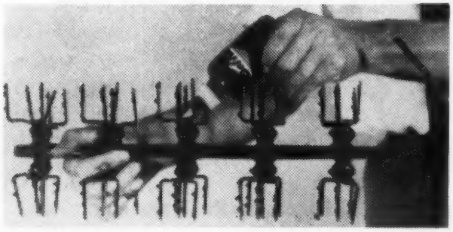


"Squeez-on" applicator being used to patch damaged plating rack with Sel-Rex plastisol. The applicator is supplied free with initial orders for the material, which produces non-contaminating, air-dry coating of 40 mils or more.

coatings air-dry in approximately 30 minutes.

A "Squeez-on" applicator filled with a trial quantity of the plastisol will be supplied with initial orders. The applicator is specially designed for use in patching or maintenance coating of hard-to-reach places, and may be refilled and used as often as desired.

Descriptive technical bulletin gives complete details.

Manufacturer: Sel-Rex Corporation, 75 River Rd., Nutley 10, N. J.

For more data circle **30** on Reader Service Card

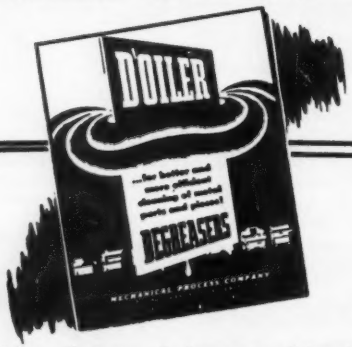
★ ★ ★

Automatic Spray Gun

Description: A spray gun called the Auto-Rod produces finely atomized spray, is designed for use on automatic spray machines that have moving guns. Lightweight, it puts a minimum strain on support bars in any installation, the manufacturer states.

Design Features: All hose connections parallel and angled away from the spray area, where space is scarce; plunger screws out by hand without

Send for this folder on D'OILER DEGREASERS



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disturbing other parts; seals automatically compensate for wear, are self-lubricating and solvent proof; no exposed threads; snap-position fluid adjustment cannot get out of adjustment from vibration.

Manufacturer: Eclipse Air Brush Co., 390 Park Ave., Newark, N. J.
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Variable Voltage Source

Description: A relay tester designed to check the accuracy and response of devices used to protect electrical equipment also is a source of infinitely variable voltage (0-115 volts) for laboratory or maintenance service. Known as the Vari-Pac Tester, the unit will "check out" relays for circuit breakers, overload relays, circuit breakers, and a wide range of time-versus-current devices.

The main output circuit provides the following continuous alternating current rating: 0-4 volts at 100 amps; 0-8 volts at 50 amps; 0-16 volts at 25 amps; and 0-32 volts at 12.5 amps, with 115-volt, 60-cycle, single-phase input.

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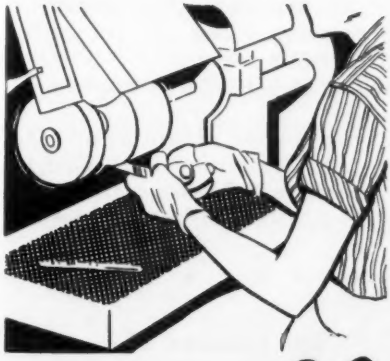

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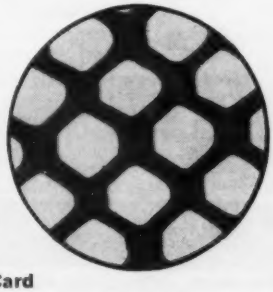
RP *Neotex*



RESEARCH PRODUCTS CORPORATION

Dept. 76, Madison 10, Wis.

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When used as a test instrument the device to be tested is connected to the appropriate terminals on the Vari-Pac and a predetermined current is permitted to flow through. The unit then shows both current and time of response.

A technical data bulletin giving full details is available from the manufacturer.

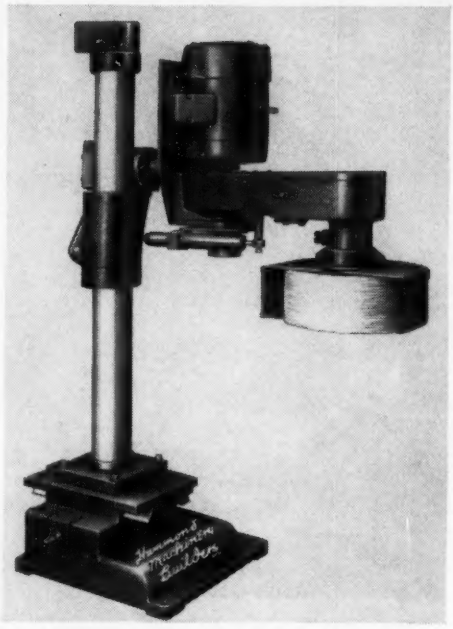
Manufacturer: Sel-Rex Corporation, 75 River Rd., Nutley 10, N. J.

For more data circle **32** on Reader Service Card

★ ★ ★

Heavy-Duty Polisher-Buffer

Description: A heavy-duty floating-type polishing and buffing head is available with 10-, 15- or 20-h.p. motor



Hammond Heavy-Duty Polisher-Buffer

and multi-V-belt drive. This head is suitable for use on rotary automatic turrets or straight-line conveyors where floating action on irregular shaped parts is required.

Bulletin 55-111 gives complete details.

Manufacturer: Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

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Deadline News . . .

New technique in which parts are cleaned and painted in the same machine was introduced by Du Pont at the Metal Show, just concluded in Cleveland. Entire process takes place under a trichloretnylene "blanket" of vapor, results in dry, painted part. Parts are degreased in trichloretnylene, then flow coated with a paint that is thinned with trichlorethylene rather than conventional thinners. Most types of paints can be reformulated with "tri" as the thinner, Du Pont states. Air-dry formulations are dry when they leave the machine, while coatings to be baked can often be applied in two-coat process (primer and finish coat), then baked.

Almco, Queen Products Div., has cut prices on barrel finishing supplies for users willing to order in quantity. New "blanket order" program makes it possible for user who can anticipate future needs to order larger quantity at "substantial discount."

General Motors has officially opened new 10-acre test field in south Dade County, near Miami, Florida. New facility is said to be most completely outfitted weathering station in the auto industry, replaces 30-year-old site near Miami's International Airport. This "piece of GM Tech Center" will carefully document the performance of about 25,000 samples per year, report on effects of sunlight, moisture and salt air on paint, plating, fabrics, plastics, other automotive materials.

A clear anodic coating for magnesium developed by Dow Chemical Co. can be applied in less than a minute. For use primarily as a pretreatment on parts that are to be varnished or lacquered, new process makes it possible to retain metallic appearance, while increasing corrosion resistance. Magnesium parts with new anodic coating plus topcoat of lacquer or varnish have emerged from 500 hours in 20 per cent salt spray with original appearance unchanged, Dow states. A modification of standard Dow 17 anodic treatment for magnesium, the process operates at 40 volts rather than 70-90 required for standard Dow 17.

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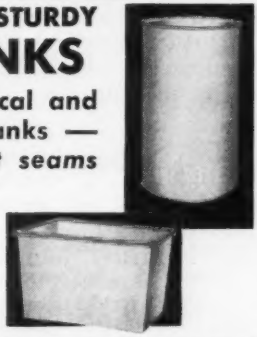
. . . . . Non-Breakable Cylindrical and Rectangular — External Flange Tanks — Molded in One Piece . . . *without* seams



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ACIDS: Acetic 10%, Chromic 10%, Hydrochloric 50%, Hydrofloric 50%, Nitric 10%, and Sulfuric 70% . . . Sodium Hydroxide 50% . . . Hydrogen Peroxide 30%.

Cylindrical Tanks—External Curled Cuff Flange—Straight Sides

Stock No.	Gal.	Out. Dia.	Height	Remarks	Price
CK 1522	15	15 ins.	22 ins.	Support	$18.50
CK 1828	30	18 ins.	29 ins.	Support	23.75
CK 2235	55	22¼ ins.	34½ ins.	Support	26.00

Cylindrical Tanks will fit as inserts into standard 15, 30, and 55 gallon steel drums.

Rectangular Tanks — External Flange — Straight Sides — Heavy Wall

Stock No.	Gal.	Length	Width	Height	Remarks	Price
RX 191936	52	18½ ins.	18½ ins.	35¾ ins.	Support	$111.75
RX 231536	52	22¾ ins.	14¾ ins.	35½ ins.	Support	111.75
RX 481523	68	47½ ins.	14½ ins.	23 ins.	Support	119.25
RX 262636	101	25½ ins.	25½ ins.	35½ ins.	Support	131.25
RX 471829	104	47 ins.	17½ ins.	29¼ ins.	Support	150.00

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News of the Finishing Industry

✓company news
✓new positions
✓new plants
✓meetings

NEW PLANTS

DuBois Opens New Jersey Plant

DuBois Co., Inc., Cincinnati manufacturer of cleaning compounds formally dedicated its new million-dollar Rutherford, N. J., plant on November 5 with an open house.

Highlight of the dedication ceremonies was the presentation by employees of a bronze plaque of the late T. V. DuBois, founder and president of the company for 37 years, until his death in November, 1957.

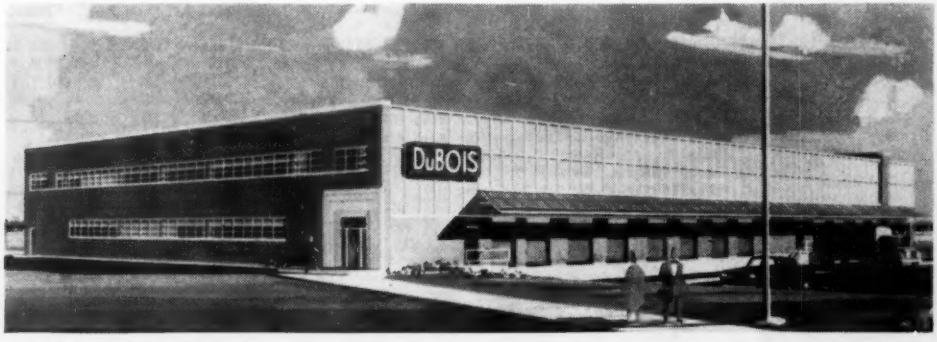
The new 53,000-square-foot plant has been operating on a limited scale since July, 1958, will begin full production in November, company officials state. Located across the river from New York City, the new plant will enable the company to give faster service to customers in the East.

Sylvania Opens New Laboratory

Speaking at the formal opening of a new 48,000-square-foot laboratory recently opened by Sylvania Electric Products, Inc., in Towanda, Pa., Marion E. Pettegrew, senior vice president in charge of the company's Chemical and Metallurgical Division, said that man's conquest of outer space will be governed by the ability of science and industry to develop abundant quantities of "workable" metals and alloys capable of withstanding the tremendous heat generated by ultrasonic flight.

The Chemical and Metallurgical Division's new laboratory is engaged in scientific research, engineering, and product development in many areas of metallurgy and chemistry, and in such fields as phosphors, semiconductor materials, spectrography, and X-ray diffraction.

The new research center embodies the most modern concepts in labora-



New plant built by DuBois Company, Incorporated, in East Rutherford, New Jersey

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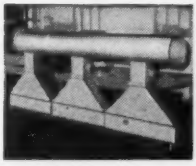
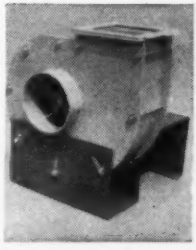
Let the Heil corrosion engineers—with our 29 years of experience—survey your plant, no cost or obligation, and recommend the equipment—and the materials—that will meet your conditions best.

Write today for the Heil fully descriptive bulletins.



(Above) Heil Rigidon Solid Plastic Exhaust Hoods and Manifold.

(Below) Heil Rigivin Solid Plastic No. 16 Fan.



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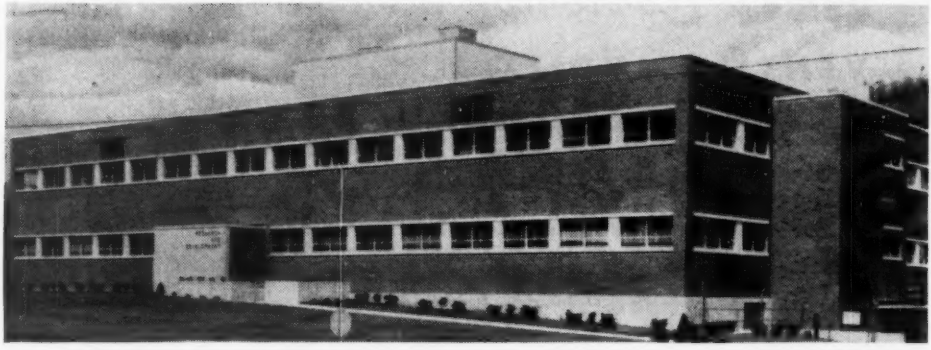

Sylvania Electric Products recently opened new 48,000-square-foot engineering, research and development laboratory. Modern lab is equipped for advanced experimentation in the fields of high temperature metals, semiconductor materials and TV phosphors.

tory design. It houses engineering offices, laboratory and pilot-plant facilities for more than 100 scientists, engineers and technicians.

Diamond Alkali Announces Plans for New Research Center

Diamond Alkali Company, Cleveland, Ohio, producer of industrial and agricultural chemicals will build a multi-million-dollar, campus-style research center a few miles south of Painesville, Ohio.

Present plans call for construction of the project to be carried out in stages. The initial phase comprises a multi-unit group of buildings for Central Research and Development.

The Central Research Building will provide space for 60 laboratories, 22 offices, library, Patent Department, and other supporting services.

The Development Building will house a pilot area providing an open section for experimental operations. Balconies will be constructed at the second and third floor levels around the perimeter of the building.

COMPANIES

Reorganized R&D Group Moves into New H-VW-M Lab

Hanson-Van Winkle-Munning Company has begun operations in its new research and development laboratory, recently set up to broaden the company's activities in electroplating and other finishing processes.

Campus-style research center to be built by Diamond Alkali Company will be located on an attractively landscaped 800-acre site just a few miles south of company's Painesville, Ohio, plant and present research facilities at Fairport. Shown here are architects' models of Central Research Buildings. New center will be constructed in stages.

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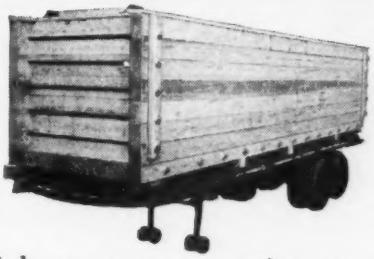

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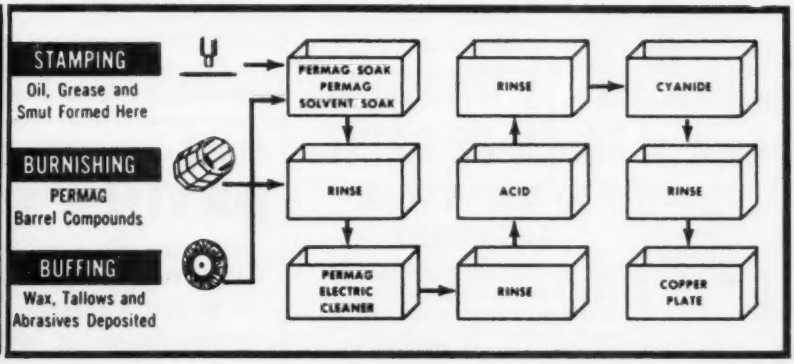

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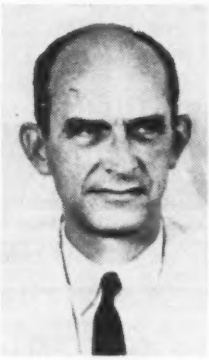
Eugene A. Roche

Dr. Otto Kardos



Wm. B. Stoddard, Jr.

The company has announced several organizational changes in the laboratory's staff. Dr. Otto Kardos has been named senior scientist, will concentrate on research and development of electroplating processes.

William B. Stoddard, Jr., becomes assistant manager of electrochemical research.

Eugene A. Roche has been appointed research chemist. Mr. Roche came to H-VW-M from American Chemical Paint Co.

Nuodex Products Expands Nickel Salts Production

Expansion of production facilities for nickel catalyst and plating salts has been completed by Nuodex Products Company, a Division of Heyden Newport Chemical Corporation.

The Nuodex nickel salts product line now includes nickel sulfate, nickel chloride, nickel formate, nickel carbonate, nickel nitrate and nickel acetate.

American Buff Awarded U. S. Trademark for "Golden Treated" Buffs

The U. S. Patent Office has granted American Buff Company exclusive permission to use the trademark, "Golden Treated" on buffs impregnated with the company's special Golden Treatment process.

This process is designed to strengthen and bind together the fibres of cot-

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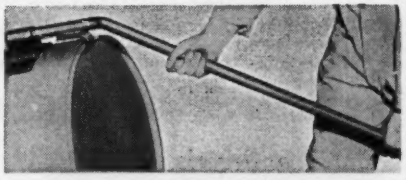

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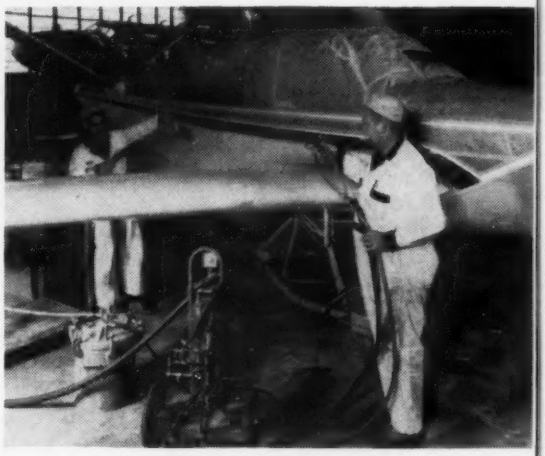
ton or sisal buffs, providing firmer body and eliminating frayed ends. Buffs treated by this process are also said to hold buffing compound better.

Aircraft Painting: Hot Spray Helps

The move to paint aircraft with flourescent material and distinctive colors as a safety measure has brought renewed interest in the hot spray method of refinishing planes, according to H. M. Kidd, vice president-sales of The DeVilbiss Company.

With many private plane owners going along with government recommendations for color schemes providing greater visibility in the air, maintenance operators are finding that the hot spray method permits them to turn out quality jobs faster.

Aircraft maintenance operators are taking a leaf from the book of plane manufacturers and the base shops of commercial airlines and acquiring



portable heating units for use with spray outfits.

Studies show that use of the hot spray equipment permits more efficient painting in varying temperature conditions, improves film "build" and results in better looking, longer last-

Collect Dirt-Don't Spread It Around

The Dust-All TACK RAG collects dust, dirt and lint from surfaces before painting and fine finishing. Stays soft and tacky indefinitely. Leaves no surface film or residue. Non-combustible.

Made in 18"x36" size folded to 4½"x6", bulk packed or in individual glassine bags, also available in rolls to your specified yardage. Your selection of various weaves of cloth and amount of tack from very light to extra heavy.

MARD PRODUCTS, INC.

1020 E. TEN MILE ROAD • HAZEL PARK, MICHIGAN

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ing paint jobs. Heating of the paint keeps viscosity constant; produces finer atomization of heavy material; and reduces overspray.

Udylite Launches "Project Alert"

Udylite Corporation, Detroit plating equipment and materials manufacturer, recently began a campaign to spur its own organization as well as the entire plating industry into a fresh attack on problems facing the industry as well as individual businesses.

Udylite President Clyde H. Reeme, in explaining the new program, said, "The goal (of Project Alert) is to sweep industry with a program of continual vigilance, reaching into every plant and office, engineering department and sales department to create the magic of enthusiasm that will set us on our way. . . ."

Udylite will push the new program on a broad front, company officials state. Trade paper advertisements will urge people in the industry to apply more creativity and vitality to their own tasks, more devotion and energy to their businesses and to the industry as a whole.

Applying the philosophy to its own marketing program, Udylite will offer a series of "specials" on its equipment and services, has already expanded its sales and service forces to do a more effective merchandising job. The initial phase of the campaign at Udylite, already in progress, is a special offer on barrel plating replacement and repair. It is one of a series of special offers to be made by the company.

Metal & Thermit Forms Development Department

Metal & Thermit Corporation, Rahway, N. J. manufacturer of organic coatings, electroplating supplies, and other products, recently formed a new development department.

The new department will be headed by H. E. Hirschland, director, and C. H. Carpenter, manager. It will be responsible for market development, market research and new product development.

While development of new chemicals and metals will be stressed, the new department's work will include work on all of the company's present products.

Kelite Announces New Products at Sales Meeting

Kelite Corporation recently announced three new products at its semi-annual meeting of Eastern Region sales personnel.

New products: a paint deflocculant that deflocculates without foaming; a

INCREASE PRODUCTION! CUT COSTS!
Your paint is factory fresh ready for use when mixed in a
MIRACLE PAINT MIXER
5 GAL. MODEL
¼ Pt. to 55 Gal. Mixers Available
Write to:
MIRACLE PAINT REJUVENATOR CO.
500 NORTH ROBERT STREET, ST. PAUL 1, MINNESOTA
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Buff Cooler, Faster with 45° Spoke Buffs
Patented mounting maintains best cutting angle of 45° for faster, smoother cutting with less pressure. Ventilation from 24 openings. We also mfg. all types of buffs.
Write for folder.
GUARANTEED BUFF CO., INC.
20 Vandam St. New York 13, N. Y.
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Kelite sales personnel heard about three new products the company plans to market soon at the company's semi-annual Eastern Region conference, held recently at Kelite office in Berkely, N. J. (Front row, left to right)—C. L. Rust, J. J. Trexler, P. J. Stroh, G. R. Slicker, J. Emala, S. F. Silvestro, W. E. Wilgan, R. L. Bradley, J. H. Sweigart, H. P. O'Horo, J. A. Von Pless, J. S. Vanos, D. A. Foley, G. Penndorf, J. E. O'Brien. (Back row, left to right) C. N. Chalfant, F. Kelly, J. B. Palien, M. Petrusiak, S. Perez, J. G. Schirtzinger, H. J. Bystricky, E. D. Schunke, L. C. Sorensen, W. Sorenson, L. McDonald, A. Damalak, C. R. McClune, W. J. Hennessy, C. W. Gilmore, G. K. Boucher, A. E. Sakavich.

device for cleaning inside storage tanks and tank trucks; and a patented aluminum etchant additive for use with caustic soda. All three will be marketed in the near future, Kelite officials said.

JAM PACKED VALUE!

"Having read the German literature on Electroplating I can say I never found in it the useful details for the plater with which your course is jam packed," writes Swiss plating chemist Werner Fleuhmann. Yes, for anyone doing plating, ELECTRO-PLATING KNOW HOW is a jam packed value! Write, Dr. Joseph B. Kushner, Electroplating School, 2509 Washington Ave., Evansville 14P, Indiana.

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METALS GLO WITH "TI-CO"

- **COB GRITS (Blasting)**
- **COB FLOUR (Foundry)**
- **COB MEAL (Tumbling)**

Use In Blasting, Tumbling Machine To Remove Burrs, Plastic Flash; Molding Or Core Sand. Will Replace Steel Shot At Much Lower Cost.

TI-CO INDUSTRIES, INC.
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Lanly **FINISHING OVENS**

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FROIL *Rust Preventive* **OIL**

- Positive barrier against corrosion that lasts for MONTHS
- Protects any metal—even delicate MICRO-finishes
- Eliminates fingerprint damage and water spotting.

Write for Data Sheet No. RP-100 *"FROIL FOILS RUST"*

OCTAGON PROCESS INC. 15 BANK STREET STATEN ISLAND 1, N. Y.

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NEW POSITIONS

C. Berton Persons has been appointed representative for the Industrial Division, **Metalwash Machinery Corporation,** Elizabeth, New Jersey manufacturer of finishing systems for the metal products manufacturing industry. In his newly created post, Mr. Persons will represent the company in the greater Cleveland area.

P. J. Calabrese has been appointed sales manager of **Grieve-Hendry Co., Inc.,** Chicago manufacturer of industrial and laboratory ovens and furnaces.

Mr. Calabrese was formerly regional sales manager for Cramer Controls Corp., and prior to that time industrial market specialist for Minneapolis-Honeywell Regulator Co.

C. B. Persons

Dr. E. B. Saubestre

P. J. Calabrese

Alfred J. Luhks, Jr.

Dr. Edward B. Saubestre has joined Enthone, Inc. of New Haven, Connecticut, a subsidiary of American Smelting and Refining Company, as assistant to the research director. He will assist Dr. Walter R. Meyer, president and research director, in expanding Enthone's research and development program.

A recognized authority on metal finishing and electrochemistry, Dr. Saubestre has authored numerous technical papers on a variety of subjects and has lectured extensively.

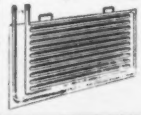
Alfred J. Luhks, Jr. has been appointed superintendent of **Cowles Chemical Company's** new organic chemical plant at Skaneateless Falls, New York. He will be in charge of the manufacture of several organic chemicals produced by Cowles.

★ ★ ★

Universal Paint & Varnish, Inc., Bedford, Ohio, has appointed **Albert F. Lehmann** to its sales staff.

IT IS NO SECRET

Ask for complete data and prices on this money-saving Dean Product which TAKES THE PLACE of pipe coils.



DEAN THERMO-PANEL COIL

DEAN THERMO-PANEL COIL DIVISION
DEAN PRODUCTS, INC. 622 Franklin Ave
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OXIDIZING COPPER, SILVER, BRASS, BRONZE
with
McKeon's "Liquid Sulphur"
Processes described in detail.
Sulphur Products Co., Inc.
McKeon Bldg., 621 W. Pittsburgh St., Greensburg, Pa.

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Duanne R. Lamiman has been appointed New York district manager by **The W. W. Sly Manufacturing Co.**, Cleveland, Ohio manufacturer of dust control systems, industrial ovens, blast cleaning equipment and tumbling mills.

★ ★ ★

Eustace Lingle has been named vice president in charge of industrial sales and education for **Oakite Products, Inc.**, New York manufacturer of industrial cleaning and metal treating compounds.

Mr. Lingle was elected to the board of directors in 1939, and named vice president in 1953. He has now been given additional responsibilities in sales, sales planning, and technical education.

New Paint Finishing Society Meets

A technical society devoted to the problems of the production paint finisher has been formed recently. Aims and purposes of the *American Production Finishers' Association* are:

1. To disseminate information pertinent to product finishing.
2. To broaden the knowledge and experience of each member of A. P. F. A. in the field of applied industrial coating.
3. To strengthen each individual's knowledge in the practical aspects of production finishing through a technical society devoted to those men practicing in the production fields of spray painting (manual and automatic), electrostatic spraying, dipping, flow coating, roller coating, and the many other methods used in industry for the application of paints, varnishes, lacquers, and enamels.
4. To increase the individual member's knowledge of raw materials and basic formulation to that extent necessary for successful purchase and application of coatings and kindred products.
5. To study and discuss surface preparation basic to coating metals and non-metals.
6. To increase each member's technical knowledge of adhesives, plastisols, organisols, and plastics.
7. To discuss mutual problems so that the knowledge of the group

"GRIPALLOY"

. . . Attractive satin sheen ETCHING PRIMER in black and colors . . . Often used as finish coat . . . Air dries in minutes . . .
. . . Amazing tight adhesion to 25 different metals as reported by a large electrical manufacturer.
. . . Excellent resistance to Salt Spray, Gasoline, and Solvents . . .

TENAX, Newark, N. J.
Lacquers—Enamels
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Elkhart Controls Company
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Write for new 1958 Catalog
of Paint Testing Instruments
and Equipment.

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P. O. BOX 5728-P
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American Production Finishers' Association

Fig. 1—Speakers' table at October 15 meeting. Shown (left to right) are: J. Lindsay Muir, Chemical Coatings Corp.; John E. McCullough, The Stanley Works, technical chairman of A. P. F. A.; Ezra A. Blount, editor of PRODUCTS FINISHING; Clifford H. Snow, The Stanley Works, secretary of A. P. F. A.; Leon T. Futoma, The Lowe Brothers Company.

may be used to solve the problems of the individual member.

8. To create by this organization an informal society where men of the finishing profession may meet on common ground for their mutual benefit.

Membership in the *American Production Finishers' Association* is open to individuals or companies who are users or ultimate consumers of paint, varnish, lacquer, and other related products.

Membership is also open to individuals employed in a technical capacity by manufacturers of paint, varnish, lacquer, and kindred products.

Founders of the new technical group

Fig. 2—Partial view of A. P. F. A. group. (PRODUCTS FINISHING Staff Photographs)

are a number of chemists and engineers associated with the Organic Finishing Laboratory of The Stanley Works, New Britain, Connecticut. The Organizing Committee includes Donald C. Young, chairman; Clifford H. Snow, secretary; Frank H. Biondi, treasurer; John E. McCullough, technical chairman; William G. Brown, Charles Koutsopoulos, and Vincent F. Sordillo.

A number of engineers and production supervisors from many plants located in Connecticut have already joined the new organization.

The group meets the third Wednesday of each month at the Yankee Silversmith, Wallingford, Conn. Further information about the organization may be obtained by addressing the American Production Finishers' Association, P. O. Box 640, New Britain, Connecticut.

Speaker for the October 15 meeting of the A. P. F. A. was Ezra A. Blount, editor of PRODUCTS FINISHING, who presented, "A Survey of Paint Application Methods."

NECROLOGY

Charles Holland

Charles Holland, president of J. Holland & Sons, Inc. died September 16 at his home in Long Beach, N. Y.

Mr. Holland joined his father, Joseph Holland in 1916 and with his brothers, William and Louis, founded the company. He was active for 40 years in the electroplating and affiliated industries.

MEETINGS of INTEREST to FINISHERS

Nov. 5-6. Fall Conference, Society of Vacuum Coaters, Hotel Statler Hilton, Detroit, Mich.

Nov. 6-7. 39th Annual Meeting, Galvanizers Committee, American Zinc Institute, Pick-Roosevelt Hotel, Pittsburgh, Pa.

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Dec. 5-6. Annual Educational Session and Banquet, Detroit Branch, A. E. S., Hotel Statler, Detroit, Mich.

Dec. 12-13. Annual Educational Session and Christmas Party, Newark Branch, A. E. S., Hotel Robert Treat, Newark, N. J.

Dec. 20. Annual Christmas Party, Buffalo Branch, A. E. S., Niagara Manor, Buffalo, N. Y.

Jan. 17, 1959. Annual Educational Session and Banquet, Grand Rapids Branch, A. E. S., Pantlind Hotel, Grand Rapids, Mich.

Jan. 31, 1959. Annual Meeting and Banquet, Chicago Branch, A. E. S., Conrad Hilton Hotel, Chicago, Ill.

Jan. 31, 1959. Annual Educational Session and Dinner Dance, Cleveland Branch, A. E. S., Cleveland, Ohio.

June 15-19, 1959. Golden Jubilee Convention and International Exposition, Fifth International Conference on Electrodeposition, Detroit, Mich.

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PRODUCT LITERATURE

40. Brass Plating Solution
Technical bulletin on True Brite brass solution, which is available in a variety of colors. True Brite Chemical Products Co., Box 31, Oakville, Conn.

41. Extrusion Aids
Literature describes Bonderite and Bonderlube products for aiding in cold extrusion of steel. Parker Rust Proof Co., 2172 E. Milwaukee Ave., Detroit 11, Mich.

42. Baking and Drying
Bulletin on Chromalox Modular Panels, which can be used as "building blocks" to construct ovens and drying panels. Edwin L. Wiegand Co., 7522 Thomas Blvd., Pittsburgh 8, Pa.

43. Electrostatic Spray Painting
Information on the Ransburg No. 2 electrostatic spray painting process. Ransburg Electro-Coating Corp., P. O. Box 7822, Indianapolis 23, Ind.

44. Abrasive Belt Polishing Machines
Information on Hill Acme abrasive belt polishing machines for polishing flat surfaces of ferrous and non-ferrous metals. The Hill Acme Co., 1207 W. 65th St., Cleveland 2, Ohio.

45. Printed Circuits
Information on silk screens and ink for making printed circuits. Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Ill.

46. Compounds for Barrel Processing
"Permag Compounds for Barrel Processing" is the title of a manual that gives basic information on barrel processing compounds, specific data on deburring and roughing, coloring and burnishing, descaling, rust prevention, neutralizing, other topics. Includes methods for calculating volumes of barrels, notes from case histories. Magnuson Products Corp., 50 Court St., Brooklyn 1, N. Y.

47. Metal Preparation Products
Literature describes complete line of ing, rust removal, phosphatizing, conversion coating and cold forming. Neilson Chemical Co., 2302 Gainsboro, Detroit 20, Ferndale, Mich.

48. Spray Decorating
Literatures describes complete line of spray decorating machines and masks. Conforming Matrix Corp., 356 Toledo Factories Bldg., Toledo 2, Ohio.

49. Vacuum Plating
Information on depositing metallic coatings by the vacuum plating method. Consolidated Electrodynamics, Rochester Div., Rochester 3, N. Y.

50. Coated Abrasives
Information on the company's line of coated abrasive products: belts, rolls, sheets, discs, specialties. Abrasive Products, Inc., South Braintree 85, Mass.

51. Anode Hooks
Information on PPI Uzall anode hooks. Plating Products, Inc., 1509 N. Washington, Kokomo, Indiana.

52. Etch Primer
Data on Gripalloy, an etch primer available in black and colors. Used as primer or finish coat. Tenax, Newark 5, N. J.

53. Drying and Baking Booklet
Data Booklet D117 shows how heating units and ovens of all sizes and shapes can be built at low cost from prefabricated interlocking infrared sections. Dry Clime Lamp Corp., Greensburg, Indiana.

54. Isophthalic-Based Paints
Information on the improved abrasion resistance, weather resistance, film flexibility and gloss retention of paints made with isophthalic-based resins. Oronite Chemical Co., 200 Bush St., San Francisco, Calif.

55. Cut Anode Waste
Information on reducing waste of costly anodes by purifying plating baths with activated carbon so as to reduce rejects. Chemicals Div., Atlas Powder Co., Wilmington 99, Del.

56. Pearlescent Finishes
Information on Nacromer YNC, an additive that is used in standard organic finishes to produce a pearlescent finish. The Mearl Corporation, 124 E. 40th St., New York 16, N. Y.

57. Ovens for Industry
"Ovens for Industry" catalog describes and illustrates many different types and sizes of industrial ovens. Kirk & Blum Mfg. Co., 3116 Forrer St., Cincinnati 9, Ohio.

58. Drum Upender
Information on a handy tool for upending heavy drums easily. Morse Mfg. Co., Inc., 762 W. Manlius St., E. Syracuse, New York.

59. Chromic Acid
Information on BFC chromic acid. Better Finishes & Coatings, Inc., 276 Doremus Ave., Newark 5, N. J.

60. Plating Racks
Illustrated bulletin on Thinker Boy plating racks, which are made of stock insulated parts that assemble with a leakproof seal. Belke Manufacturing Co., 947 N. Cicero Ave., Chicago 51, Ill.

61. Ultrasonic Cleaning Equipment
Data on Blakeslee conveyorized and open-tank models of ultrasonic cleaning equipment. G. S. Blakeslee & Co., 1844 S. Laramie Ave., Chicago 50, Ill.

62. Electrocleaners
Information on Magnus electrocleaning products. Magnus Chemical Co., Inc., 208 South Ave., Garfield, N. J.

63. Clear Coating
Information on Agateen No. 13C, a clear finish said to be especially useful in nameplate applications. Agate Lacquer Manufacturing Co., Inc., 11-13 43rd Rd., Long Island City, N. Y.

64. Centrifugal Dryer
Four-page folder gives complete details on the Model 20 New Holland Kreider centrifugal dryer. New Holland Machine Co., Dept. PF-1158, New Holland, Pa.

65. Clear Lacquers
Data on clear lacquers especially formulated to be used in protecting highly polished metals and those that tarnish easily. Randolph Products Co., Carlstadt, New Jersey.

66. Fabrics for Work Clothes
Different types of acid-resistant and lint-free apparel are listed in the 1958 Worklon Catalog, which describes and illustrates shirts, pants, coveralls and laboratory coats. Worklon, Inc., Dept. PF, 253 W. 28th St., New York 1, N. Y.

67. Used Equipment
Information on used buffing and polishing machines. J. Holland & Sons, Inc., 485 Keap St., Brooklyn 11, N. Y.

68. Tumbling Barrels
Catalog describes and illustrates a complete line of tumbling barrels. Henderson Brothers Company, 138 S. Leonard St., Waterbury, Conn.

69. Degreasers
Catalog describes laboratory, two-dip, three-dip, vapor-spray, barrel-type automatic, and semi-automatic degreasers. Mechanical Process Co., Inc., 392 Valley St., South Orange, N. J.

70. Rinse Aid
Information on Rins-Aid, an additive for rinse water. It prevents staining and tarnishing and hastens drying. R. O. Hull & Co., Inc., 1304 Parsons Ct., Rocky River 16, Ohio.

71. Cob Grits for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc., P. O. Box 185, Tipton, Indiana.

72. Barrel Finishing Equipment, Supplies
Catalog No. 2 describes barrel finishing equipment that can be used for deburring, grinding, descaling, polishing, burnishing, drying. Recommendations for improved results are contained in section entitled "6 Steps for Positive Finishing Results." Globe Barrel Finishing Equipment Div., Casalbi Co., Wayne St., Jackson, Mich.

73. Cleaner-Phosphatizer
Data Sheet No. 11 describes dry iron phosphatizing compound that is formulated to clean and phosphatize in one operation. For steel, aluminum, zinc, and cadmium. MacDermid, Inc., Waterbury, Connecticut.

74. Spray Painting Without Air
Form No. 303-131 is a bulletin on the Graco Hydra-Spray Process, a spray painting method that makes use of high pressure rather than compressed air to atomize paint. Process is said to produce less overspray, heavier film per pass of gun. No heat required. Gray Company, Inc., Minneapolis 13, Minn.

75. Drying Ovens
Information on gas-fired recirculating ovens in many types and sizes. The Carl Mayer Corp., 20800 Center Ridge Rd., Cleveland 16, Ohio.

76. Multiple-Compartment Barrel Finishing Machines
Multiple-compartment barrel finishing machines provide an economical and efficient way to process many parts that cannot be processed in conventional batch-type machines. Bulletin No. 201 shows many models, gives complete details. Techline Div., Wheelabrator Corp., 1155 Avenue V, Vicksburg, Mich.

77. Room-Temperature Phosphatizing
Technical bulletin discusses methods of cleaning and phosphatizing at room temperature. Klem Chemicals, Inc., 14401 Lanson Ave., Detroit, Michigan.

78. Material-Handling Accessories
Information bulletin describes wide range of parts-handling baskets, conveyor hooks, plating racks, special-purpose equipment. Bulletin MS-57. Wire and Iron Products, Inc., 1725 Sixteenth St., Detroit 16, Mich.

79. Silicone Intermediate
Sixteen pages of applications, properties and formulations for Dow Corning Z-6018, a silicone intermediate that reacts with a wide variety of organic resins and monomers to improve their heat stability and resistance to moisture and weather. Dow Corning Corp., Midland, Mich.

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80. Automatic Anodizing Equipment
Four-page folder covers such subjects as proper anodizing conditions, film qualities, evaluating the film, racking, how to handle current surge, design of tanks, temperature control, cleaning, bright dipping, coloring, sealing. Frederic B. Stevens, Inc., Detroit 16, Mich.

81. Protective Coatings and Linings
Bulletin describes coatings for industrial equipment of all kinds: coatings to protect against corrosion and contamination; linings for chemical-storage tanks; protective coatings for pipe; many other types. Includes list of Lithcote protective linings and coatings, together with description of properties and applications for each coating. Lithcote Corp., 5000 W. Lake St., Melrose Park, Ill.

82. Vibrating Barrel Finisher
Bulletin 254 tells about the Vibraslide barrel finishing machine, which vibrates the entire barrel while it is rotating so as to improve barrel finishing results. B. W. Elliott Mfg. Co., Inc., Binghamton, N. Y.

83. Electrocleaner for Zinc Die Castings
Folder F 10466 gives application procedures and lists advantages for Oakite Composition No. 195, a new, non-etching reverse-current cleaner that is said to remove soils without darkening the zinc. Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

84. Organic Coatings
Folder describes products, services and facilities of Stanley Chemical Co., maker of lacquers, synthetics, vinyls, enamels. Stanley Chemical Co., Dept. J, Subsidiary of The Stanley Works, 60 Berlin St., East Berlin, Conn.

85. Ovens and Dryers
Bulletin 157 illustrates a complete line of baking and drying ovens, ranging from cabinet type to large conveyorized ovens. Young Bros. Co., 1830 Columbus Rd., Cleveland 13, Ohio.

86. Bright Zinc Plating
Technical Bulletin Z-1 AY is a detailed technical discussion of Udylite bright zinc plating processes A and Y. Includes information on base metals that can be plated with these processes; cleaning procedures; equipment; sludge and its causes; rinsing procedures; drying procedures; preparation of the solution — composition and operation; additions; temperature, time, and so on. Udylite Corp., Detroit 11, Mich.

87. Automatic Polishing, Buffing Machines
Sixteen-page two-color folder describes straight-line automatic polishing and buffing machines. Includes discussion of basic factors to consider when selecting straight-line machines. Seven machines are described in detail, with information on design features, operation, typical applications. Acme Manufacturing Co., 1400 E. Nine Mile Rd., Detroit 20, Mich.

88. Cold Strippers
Data sheet on Electro Cold Strippers, non-injurious, non-flammable paint removers that can be applied by dipping, brushing or spraying, without heating. Allied Finishing Specialties Co., 2643 W. Grand Ave., Chicago 12, Ill.

89. Water-Soluble Clear Protective Coating for Metals
Data sheet on Irilac No. 1000, a clear protective coating formed by a liquid that incorporates corrosion inhibitors in a water-soluble polymer base. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Maryland.

90. Conveyor Rollers
Four-page brochure illustrates and describes rollers and frames and how to select the proper size and type. Alvey-Ferguson Co., 646 Disney St., Cincinnati 9, Ohio.

91. Alloy Anodes for Acid Copper Plating
Detailed technical analysis of the advantages and properties of "Plus-4" copper anodes is contained in an article reprint. American Brass Co., Waterbury 20, Conn.

92. Felt Products
A 12-page booklet contains sections on felt polishing wheels, their care and maintenance; felt bobs and mandrel-mounted bobs; sheet felts; and other felt products used in industry. Bacon Felt Co., 447 W. Water St., Taunton, Mass.

93. Centrifugal Machinery
A 16-page brochure describes complete line of centrifugal machinery, including oil extractors, dryers, washers, washer-dryers, oil-recovery and reconditioning systems, galvanizers, breakers, enamelers, impregnators. Leon J. Barrett Co., 1449 Grafton Rd., Worcester 1, Mass.

94. Water-Wash Spray Booth
Bulletin DUE contains illustrations and diagrams that illustrate the design features and operating principles of Binks Water-Wash Spray Booths. Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago 12, Ill.

95. Tack Cloths
Literature describes different types of treated cloth that are used in removing dust from products prior to finishing. Bond Chemical Products Co., 2639 Clybourn Ave., Chicago 14, Ill.

96. Self-Bond Nameplates
Bulletin No. 161 shows a variety of nameplates that are made of tough Mylar plastic, metalized to form a design or nameplate and backed with a self-bonding adhesive that makes application easy. W. H. Brady Co., 746 W. Glendale Ave., Milwaukee 9, Wisconsin.

97. Aluminum Wheel and Roller Conveyors
Illustrated catalog sheet provides full details on lightweight line of aluminum wheel and roller conveyors. The E. W. Buschman Co., 4516 Clifton Ave., Cincinnati 32, Ohio.

98. Flock Application
Brochure on the application of flock with new materials, using new techniques. Cellusuede Products, Inc., 512 N. Madison St., Rockford, Ill.

99. Metal-Cleaning Equipment
Bulletin 521 describes company's line of metal-cleaning equipment. Circo Equipment Co., 122 Central Ave., Clark (Rahway) N. J.

100. Rhodium Plating Instructions
Handy pocket-sized booklet gives complete instructions for rhodium plating, includes data on solution preparation, work preparation, temperatures and current densities, tanks, anodes, and so on. Sigmund Cohn Mfg. Co., Inc., 121 S. Columbus Ave., Mount Vernon, N. Y.

101. Electroplating Filtration
"A New Concept of Electroplating Filtration" is the title of a new booklet that explains how Fulflo Filters with Honeycomb Filter Tubes provide tank turnover up to three times per hour. Bulletin GEO-508. Commercial Filters Corp., Dept. PF, Melrose 76, Mass.

102. Heat-Exchanger Panels
Bulletin 258 includes complete specifications and price data for Dean Thermo-Panel heat exchangers, which are made by welding together two embossed plates to form flow channels. Dean Thermo-Panel Coil Div., Dean Products, Inc., 622 Franklin Ave., Brooklyn 38, N. Y.

103. Spray Nozzles, Accessories
Bulletin D33A gives specifications and prices for various types of spray nozzles. Delavan Manufacturing Co., West Des Moines, Iowa.

104. Anodizing Cylinder
Catalog sheet on anodizing cylinder for processing small parts. Made of titanium, it resists acids, needs no stripping. Detroit Industrial Process Co., 9301 French Rd., Detroit 13, Mich.

105. Spray-Gun Motion Study
An analysis of spray-gun techniques that will aid the user in obtaining the best quality sprayed finish with less fatigue and at minimum cost. The DeVilbiss Co., Toledo 1, Ohio.

106. Vapor Degreasing
"Vapor Degreasing with Diamond Perchlorethylene" is the title of a 12-page technical bulletin that presents data on 13 major advantages of vapor degreasing prior to painting, plating and other finishing operations. Includes sections on essentials of vapor degreasing equipment, methods of scheduling vapor-degreaser cleanouts and solvent distillation, suggested operating procedures. Diamond Alkali Co., Chlorinated Products Div., 300 Union Commerce Bldg., Cleveland 14, Ohio.

107. Sodium Cyanide
A 12-page brochure describes physical forms of cyanide, gives storage instructions, includes data on physical properties of sodium cyanide, tells how to dispose of cyanide wastes. Electrochemicals Dept., Sodium Products Div., E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.

108. Spray-Painting Equipment
Folder shows complete line of spray-painting equipment, reviews and introduces many newly developed products. Eclipse Air Brush Co., 381 Park Ave., Newark 7, N. J.

109. Abrasion Tester
Leaflet describes PEI abrasion tester, a mechanical device for testing comparative abrasion resistance of porcelain enamel panels. Gardner Laboratory, Inc., Bethesda 14, Md.

110. Cabinet Ovens
Bulletin 3-GH-456 lists features of Grieve-Hendry cabinet ovens, includes specifications for various sizes and types. Grieve-Hendry Co., Inc., 1414 W. Carroll Ave., Chicago 7, Ill.

111. Belt Grinder
Bulletin 336-T describes and illustrates Model UBG-50 universal belt grinder, a machine with two heads—one for internal and flexible-belt grinding, one for contact wheel, flexible-belt, platen and contour-wheel grinding. Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

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112. Automatic Conveyors
A four-page bulletin describes electroplating and anodizing conveyors, their applications, typical installations. Special section explains Dial-A-Cycle system, which makes it possible for nine or more plating operations to be carried out simultaneously under the control of one operator. Bulletin FAC-103. Hanson-Van Winkle-Munning Co., Church St., Matawan, N. J.

113. Bright Copper Plating Processes
Bulletin tells about two new copper plating processes: Cynorex, a high-speed copper cyanide plating process, and Cuprex, an acid copper process. Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

114. Deionization Processes, Equipment
Bulletin B-258 catalogs company's line of deionization processes and equipment. Includes data on mixed-bed units, two-bed units, softeners, filters, units for boiler and process water. Illinois Water Treatment Co., 840 Cedar St., Rockford, Illinois.

115. Filtration for the Plating Industry
Typical installations of filters in plating installations are included along with diagrams to show ease of cleaning in Bulletin EP-100, which also details other construction features, operating cycles. Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Ill.

116. Wood Tanks Reference and Data Handbook
A 28-page booklet on the properties and uses of wood tanks includes data on capacities, heat-transfer properties, service life, tank linings, design data, installation and care. National Wood Tank Institute, 332 S. Michigan Ave., Chicago 4, Illinois.

117. Buffing Lathe
Leaflet on a bench-model buffing lathe includes photo and description of features for this economical unit. H. W. Kramer Co., 120-30 Jamaica Ave., Richmond Hill 18, N. Y.

118. Copper-Tin Bronze Plating
Details on a copper-tin plating process which deposits a bronze alloy plate that can be used as an undercoat for chromium or as a decorative finish. Metal & Thermit Corporation, Rahway, N. J.

119. Paint Mixer
Leaflet on a paint mixer that shakes containers of paint without opening them, so as to thoroughly mix the contents. Miracle Paint Rejuvenator Co., 500 N. Robert St., St. Paul 1, Minn.

120. Barrel-Finishing Abrasives
An 85-page manual contains sections devoted to general description of the barrel finishing process, abrasives, equipment, compounds, rust preventives, other topics of interest to people who do or intend to do barrel finishing. Each section is a comprehensive discussion of the topic. Norton Co., Worcester 6, Mass.

121. Cold Solvent Stripper
Literature on Octastrip 444, a cold-solvent stripper for high-speed removal of organic coatings from all metals. Strips epoxies, vinyls, alkyds, lacquers, plastisols, other tough coatings. Octagon Process, Inc., 15 Bank St., Staten Island 1, New York.

122. Phosphates for Aluminum
Form A-6790 contains discussion of properties of two phosphate coatings for aluminum—a green coating and a gold coating, both of which are said to have excellent protective qualities when used on aluminum. Parker Rust Proof Co., 2172 E. Milwaukee Ave., Detroit 11, Mich.

123. Chromate Treatments for Zinc, Cadmium
Bulletin 4-1, a technical discussion of Proseal Chromate treatments for zinc and cadmium. Promat Div., Poor & Co., 851 S. Market St., Waukegan, Ill.

124. Metal-Treatment Equipment
Booklet entitled "The Ransohoff Story" describes and illustrates many different types of machines for cleaning and treating metal. Includes drum-type washers for metal parts; drum-type tumbling barrels; conveyorized cleaning machines; continuous pickling machines; and equipment for deburring, burnishing, rinsing and drying before and after plating. Ransohoff, Inc., 610 N. Fifth St., Hamilton, Ohio.

125. Steam Traps
Bulletin No. 257-B describes Type TD-50 thermodynamic steam traps, their advantageous features and operating details. Sarco Co., Inc., 635 Madison Ave., New York 22, N. Y.

126. Industrial Rhodium Plating
A 24-page booklet tells where, when and how to use rhodium electroplates for electrical, electronic and other industrial applications. Sel-Rex Corp., Nutley 10, New Jersey.

127. Filter Pumps
Bulletin 202 describes and illustrates various filter pump units designed for processing corrosive solutions. Sethco Manufacturing Co., 2292 Babylon Turnpike, Merrick, L. I., New York.

128. Spray Nozzles, Accessories
Catalog No. 24 contains 48 pages of data on spray nozzles and accessories. Nozzles are listed in tabular form and complete information is given on pipe sizes, external dimensions, orifice diameters, capacties and spray angles. Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

129. Aerosol Spray Paints
Booklet entitled "Aerosols Unlimited" describes aerosol-packaged products, tells how they are made, gives data on company's service of packaging products such as paint in aerosol containers. Sprayon Products, Inc., 2077 E. 65th St., Cleveland 3, Ohio.

130. Belt-Driven Plating Cylinders
A four-page folder illustrates construction features of Stutz belt-driven plating cylinders. The Stutz Co., 4410 Carroll Ave., Chicago 24, Ill.

131. Liquid Sulphur
Six-page folder gives complete technical data on producing oxidized finishes on silver, copper, brass, bronze. Includes instructions for producing these finishes and for controlling color, subsequent lacquering, and so on. Sulphur Products, Inc., 621 W. Pittsburgh St., Greensburg, Pennsylvania.

132. Hard Bright Gold
Folder gives general data on depositing hard, bright gold, includes information on applications and operating conditions. Technic, Inc., 39 Snow St., Providence 1, Rhode Island.

133. Alkaline Rust Remover
Literature on an alkaline rust remover that removes rust, paint and primer in one operation. Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

134. Periodic Reverse for Derusting, Descaling
Bulletin PR-AD-1 gives technical data on the use of periodic reverse current in alkaline derusting. Unit Process Assemblies, Inc., 61 E. 4th St., New York 3, New York.

135. Barrel Finishing Equipment, Materials
Data sheets on barrel finishing equipment, abrasive media and compounds. Abrado Finish Corp., Dept. PF-11, 1750 Elizabeth Ave., N.W., Grand Rapids 4, Michigan.

136. Suggestions for Filtering Plating Solutions
Reprint entitled "The Use of Filters in Electroplating" gives helpful information on filtering plating solutions. Alsop Engineering Corp., 1310 Keen St., Milldale, Connecticut.

137. Protecting Aluminum
Information on the use of Alodine in protecting aluminum and bonding paint to it. Amchem Products, Inc., Ambler 14, Pennsylvania.

138. Tank Lining
Complete information on the use of Amer-Plate polyvinyl chloride sheet as a tank lining. Amercoat Corp., Dept. EI, 4809 Firestone Blvd., South Gate, Calif.

139. Cleaning Compound
Information on Apex 761 cleaning compound, a moderately alkaline free-rinsing cleaner that is coupled with emulsifiers for quick removal of impacted soils such as buffing compounds. Apex Alkali Products Co., Main & Rector Sts., Philadelphia 27, Pa.

140. Stripper for Epoxies
Brochure on Epoxystrip, a paint remover formulated to remove epoxies and other finishes that are tough to remove. Beck Equipment Co., 3350 W. 13th St., Cleveland 11, Ohio.

141. Colored Chromates for Zinc
Data on a method of producing colored chromate coatings on zinc plated parts. Colors produced include strong, attractive golds, yellows, blues, greens, violets, reds, brass and coppers. The Chemical Corp., 75 Waltham Ave., Springfield, Massachusetts.

142. Aluminum Desmutter
Technical data sheet on Cowles DO, a solution that rapidly removes primary aluminum oxide film, then reoxidizes aluminum surface slowly and uniformly with an air-stable aluminum oxide film. Recommended for use prior to spot welding, anodizing and chromate finishing. Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

143. Bronze Powders
Color card shows 33 colors of metallic powders available from stock to produce metallic finishes by spray, dip or flow coating methods. Crescent Bronze Powder Co., 118 W. Illinois St., Chicago 10, Illinois.

144. Hot-Dip Painting Process
Explanation of a hot-dip painting process that makes use of paint formulated with chlorinated solvents. Both the part being painted and the paint are heated, so that painted part dries immediately. David-Ludwig Co., 14290 Goddard Ave., Detroit 12, Michigan.

145. Thermostats, Liquid-Level Controls
Detailed data on thermostats and liquid-level controls for chemical solutions. Dept. T, Elkhart Controls Co., Route No. 2, Elkhart, Indiana.

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146. Prepare Aluminum for Plating
Literature on Alumon, a process that can be used to prepare aluminum for electroplating. Enthone, Inc., 442 Elm St., New Haven 11, Conn.

147. Wet-Blast Media
Information on Exolon Fastblast, an aluminum oxide abrasive in small particle size that can be suspended in liquid and then thrown at high speed against the work to be finished. The Exolon Co., 943 E. Niagara St., Tonawanda, N. Y.

148. Sisal Buffs
Descriptive literature on Zippo Sisal Buffs, which are said to be excellent as dual-purpose (polishing and buffing) wheels. Formax Mfg. Corp., Detroit 7, Mich.

149. Prevent Wear on Buffing Fixtures
General information folder describes company's service of coating buffing fixtures with a protective coating that increases wear resistance. Fusion Metal Coating Co., 25493 W. Eight Mile Rd., Detroit 19, Mich.

150. Roller Coating Equipment
Information on Gasway equipment for roller coat finishing. Gasway Corporation, 6463 N. Ravenswood Ave., Chicago 26, Illinois.

151. Metal-Treatment Materials
New folder describes company's line of black oxide finishes, chromate coatings, cleaners, oils and strippers. Heatbath Corp., Springfield 1, Mass.

152. Lead Anodes
Descriptive bulletins on various types and sizes of lead anodes. Heil Process Equipment Corp., 12901 Elmwood Ave., Cleveland 11, Ohio.

153. Baking and Drying Equipment
Catalog No. 560 describes and illustrates various types of baking and drying equipment. The Lanly Co., 2800 Euclid Ave., Cleveland 15, Ohio.

154. Finishing Systems
Bulletin shows typical integrated complete systems for applying organic coatings. Includes description of products being coated, the process used and specifications for the system. Michigan Oven Co., 431 Brainard Ave., Detroit 1, Mich.

155. Aluminum Cleaner
Complete details on Alkalume AC No. 1, a recently introduced cleaner formulated for cleaning aluminum prior to plating, anodizing, etching. Northwest Chemical Co., 9310 Roselawn, Detroit 4, Mich.

156. Industrial Gloves
Industrial glove catalog lists and describes many different types of gloves. Pioneer Rubber Co., 285 Tiffin Rd., Willard, Ohio.

157. Thermosetting Acrylic Enamel
Brochure contains information on Duracron thermosetting acrylic enamel, tells how this coating can reduce manufacturing costs. Pittsburgh Plate Glass Co., Industrial Finishes Div., 1 Gateway Center, Pittsburgh, Pa.

158. Self-Spray Paints
Details on company's service of packaging touch-up paints in aerosol-spray cans, under any label desired. Plasti-Kote, Inc., 9801 Harvard Ave., Cleveland 5, Ohio.

159. Pump for Corrosives
Eight-page catalog describes company's line of pumps, which are designed to handle corrosive solutions with trouble-free service. Available with various body and liner materials, designed so as to eliminate stuffing boxes and shaft seals. Vanton Pump and Equipment Corp., Hillside, N. J.

160. Electropolishing Stainless Steel
Literature on baths for electropolishing stainless steel includes operating instructions for two of these baths. Electro-Glo Co., 621 S. Kolmar Ave., Chicago 24, Ill.

457. Strainers
Information on strainers equipped with a duplex pressure gage that indicates when cleanout is required. A. E. Broughton & Co., Glen Falls, N. Y.

456. Strippable Coatings
Bulletin tells how metals and painted parts can be protected during assembly and transit by a plastic coating that is sprayed on, stripped off when product is ready for use. Spraylat Corp., One Park Ave., New York 1, N. Y.

453. Replacement Rectifier Stacks
Data sheet describes replacement rectifier stacks for d.c.-power supplies. Electronic Rectifiers, Inc., 2102 Spann Ave., Indianapolis 3, Indiana.

454. Heat-Resistant Finish
Information on Sicon silicone heat-resistant finishes. Midland Industrial Finishes Co., Dept. F-6, Waukegan, Ill.

455. Fusion-Bond Finishes
Bulletin gives details on Corvel finishing resins, used as the finishing material in a process for cladding metals with plastic materials. Applied in a fluidized bed, resins include cellulosic, vinyl, epoxies, nylon, chlorinated polyether and ethylene-base resins. National Polymer Products, Inc., Reading, Pa.

452. Tack Cloth
Information on specially treated cloths that are used for removing dust and lint just prior to paint finishing operations. Mard Products, Inc., 1020 E. Ten Mile Rd., Hazel Park, Mich.

451. Ovens, Dryers, Heaters
Eight-page booklet describes and illustrates ovens and heaters used in finishing automotive parts, preparing metal for painting, other applications. J. O. Ross Engineering Div., Midland-Ross Corp., 444 Madison Ave., New York, N. Y.

450. Dust Collector
A 12 page bulletin (No. 581) describes and illustrates a wet-type dust collector that separates dust from the air by centrifugal and impingement action against wetted surfaces, without the use of sprays, moving elements, and water eliminators. Dust Suppression & Engineering Co., 120 S. Broadway, P. O. Box 67, Lake Orion, Mich.

449. Air Moving Equipment
Bulletin DB-45-58 describes and illustrates fans and exhaust systems for ventilation, heat and fume exhaust. Data on ventilators, bifurcators, air jets, roof ventilators, vent sets, other air-moving equipment. DeBothezat Fans Div., American Machine & Metals, Inc., East Moline, Ill.

448. Disposable Spray Booth Air Filters
Folder describes and illustrates the use of RP paint arrestors, disposable filter pads that are used in spray booths to remove paint solids from exhaust air. Research Products Corp., Dept. 38, Madison 10, Wisconsin.

447. Hard-Coat Aluminum Anodizing Process
An improved process for hard-coat aluminum anodizing is described in a bulletin. Called the Poracc process, it makes possible a more uniform aluminum oxide coating and substantially greater thickness of deposit, when desired. Accurate Anodizing Corp., 4506 Roosevelt Rd., Chicago 24, Ill.

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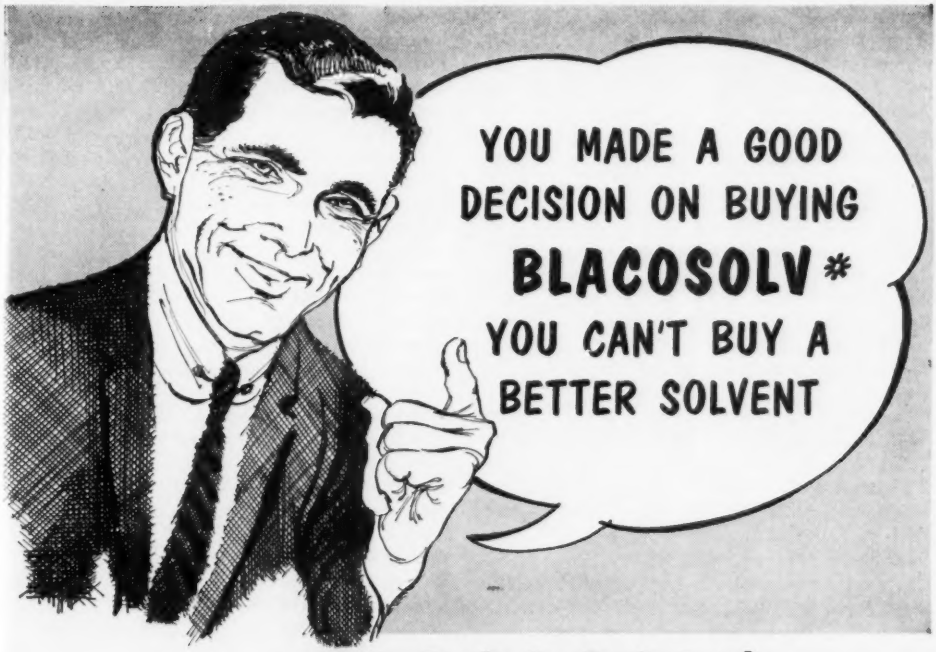

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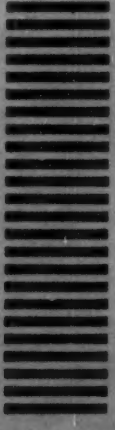

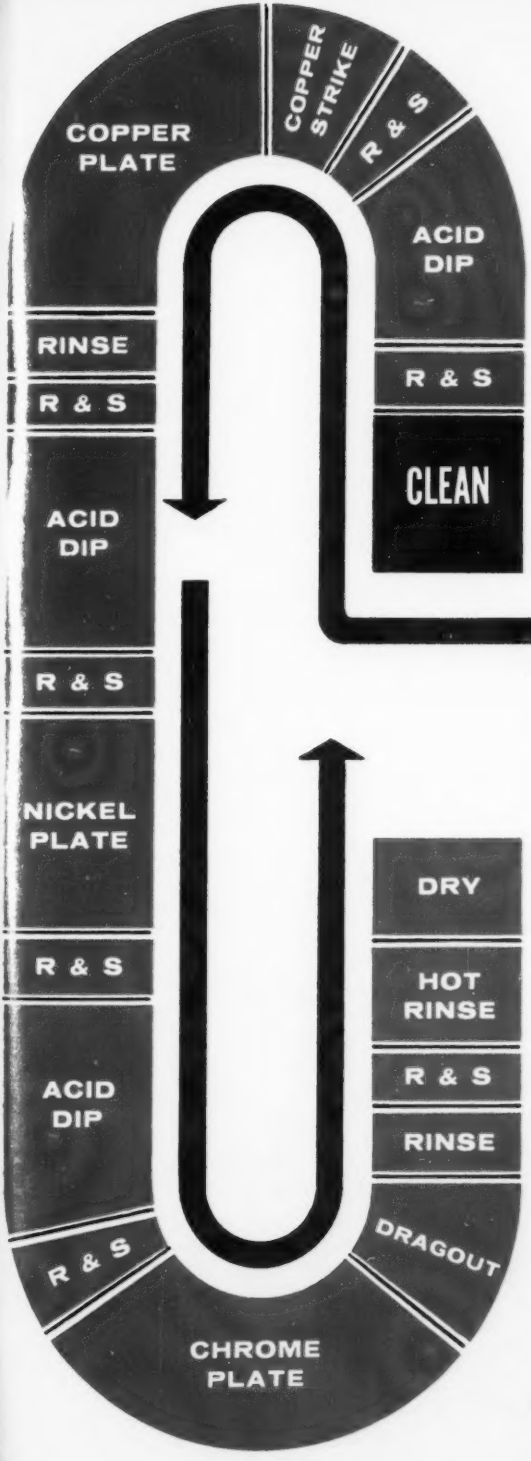

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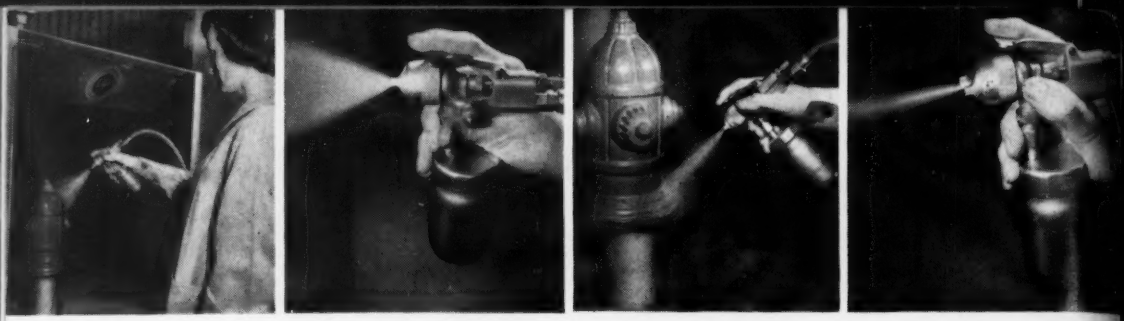
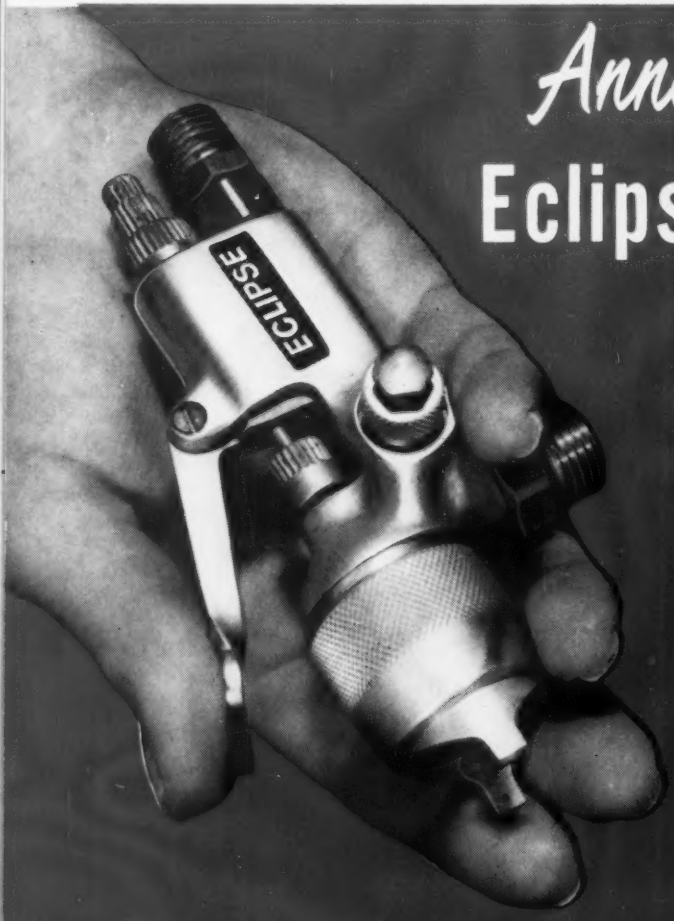


One hand instantaneous control of spray pattern

Announcing the

Eclipse Mini-Rod



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